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THE STUDY OF MATHEMATICS*

INASMUCH as this article is being written in response to editorial request, it will not, I trust, be regarded as indicating eagerness in the writer to argue the worth of a science that happens to have claimed his interest and that, on the score of appreciation, the world now holds, as it has always held, in high esteem. It would be infinitely easier to say something worth while if one could be sure that, among the readers of this magazine, there are persons who really desire to have the subject discussed. I am indeed trying to proceed upon the supposition that there are such persons. As, however, the supposition may be a mistaken one, there lingers near the damping suspicion that this essay may have no better fortune than to exemplify that besetting sin of teachers, which consists in assuming curiosity where none exists and trying to answer questions that have not been asked. The doubt is not inspiring. As to writing with a view to the creation of curiosity, that is a kind of discourse not reasonably to be expected and hardly to be undertaken in present circumstances—midsummer, latitude 40° 42′ north, longitude 74° west.

Next to the peaceful pleasure of meeting genuine curiosity, halfway, upon its own ground, comes the joy of combat when an attack upon some valued right or precious interest of the human spirit requires to be repelled. Indeed, given a competent jury, hardly any other undertaking could be more stimulating than to defend mathematics, even in dog days, from a charge of being unworthy to occupy, in the hierarchy of arts and sciences, the high place to which, from the earliest times, the judgment of mankind has assigned it. But, unfortunately, no such accusation has been brought, brought, that is, by persons of such scientific qualifications as to give their opinion in the premises weight enough to call for serious consideration. Mathematics has been often praised by the scientifically incompetent; it has not, so far as I am aware, been dispraised, or its worth challenged or denied, by the scientifically competent. The age-long immunity of mathematics from authoritative arraignment, and the high estimation in which the science has been almost universally held in enlightened times and places, unite to give it a position nearly, if not quite, unique in the history of criticism. Perhaps it were better not so. Mathematicians have a sense of security to which, it may be, they are not entitled in a critical age and a reeling world. Conceivably it might have been to the advantage of mathematics and not only of mathematics but of science in general, of philosophy, too, and the general enlightenment, if in course of the centuries mathematicians had been now and then really compelled by adverse criticism of their science to discover and to present not only to themselves but acceptably to their fellowmen the deeper justifications, if such there be, of the world's approval and applause of their work. However that may be, no one is likely to dissent from the opinion of Mr. Bertrand Russell that "in regard to every form of activity it is necessary that the question should be asked from time to time: what is its purpose and ideal? In what way does it contribute to the beauty of human existence?" An enquiry that is thus necessary for the general welfare ought to be felt as a duty, unless, more fortunately, it be felt as a pleasure.

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Why study mathematics? What are the rightful claims of the science to human regard? What are the grounds upon which a university may justify the annual expenditure of thirty to fifty thousands of dollars to provide for mathematical instruction and mathematical research?

A slight transformation of the questions will help to disclose their significance and may give a quicker sense of their poignance and edge. What is mathematics? I hasten to say that I do not intend to detain the reader and thus perhaps to dampen his interest with a definition of mathematics, though it must be said that the discovery of what mathematics is, is doubtless one of the very great scientific achievements of the nineteenth century. The question asks, not for the definition of the science, but for a brief and helpful description of it—for an obvious mark or aspect of it that will enable us to know what it is that we are here writing or reading about. Well, mathematics may be viewed either as an enterprise or as a body of achievements. As an enterprise mathematics is characterized by its aim, and its aim is to think rigorously whatever is rigorously thinkable or whatever may become rigorously thinkable in course of the upward striving and refining evolution of ideas. As a body of achievements mathematics consists of all the results that have come, in the course of the centuries, from the prosecution of that enterprise: the truth discovered by it; the doctrines created by it; the influence of these, through their applications and their beauty, upon the advancement of civilization and the weal of man.

Our questions now stand: Why should a human being desire to share in that spiritual enterprise which has for its aim to think rigorously whatever is or may become rigorously thinkable and to "frame a world according to a rule of divine perfection"? Why should men and women seek some knowledge of that variety of perfection with which men and women have enriched life and the world by rigorous thought? What are the just claims to human regard of perfect thought and the spirit of perfect thinking? Upon what grounds may a university justify the annual expenditure of thirty to fifty thousands of dollars to provide for the disciplining of men and women in the art of thinking rigorously and for the promotion of research in the realm of exact thought?

Such are the questions. They plainly sum themselves in one: among the human agencies that ameliorate life, what is the rôle of rigorous thinking? What is the rôle of the spirit that always aspires to the attainment of logical righteousness?

Evidently that question is not one for adequate handling in a brief magazine article by an ordinary student of mathematics. Rather is it a subject for a long series of lectures by a learned professor of the history of civilization. Indeed so vast is the subject that even an ordinary student of mathematics can detect some of the more obvious tasks such a philosophic historian would have to perform and a few of the difficulties he would doubtless encounter. It may be worth while to mention some of them.

Certainly one of the tasks, and probably one of the difficulties also, would be that of securing an audience—an audience, I mean, capable of understanding the lectures, for is not a genuine auditor a listener who understands? To understand the lectures it would seem to be necessary to know what that is which the lectures are about—that is, it would be necessary to know what is meant by rigorous thinking. To know this, however, one must either have consciously done some rigorous thinking or else, at the very least, have examined some specimens of it pretty carefully, just as, in order to know what good art is, it is, in general, essential either to have produced good art or to have attentively examined some specimens of it, or to have done both of these things. Here, then, at the outset our historian would meet a serious difficulty, unless his audience chanced to be one of mathematicians, which is (unfortunately?) not likely inasmuch as the great majority of mathematicians are so exclusively interested in mathematical study or teaching or research as to be but little concerned with the philosophical question of the human worth of their science. It is, therefore, easy to see how our lecturer would have to begin.

Ladies and gentlemen, we have met, he would say, to open a course of lectures dealing with the rôle of rigorous thinking in the history of civilization. In order that the course may be profitable to you, in order that it may be a course in ideas and not merely or mainly a verbal course, it is essential that you should know what rigorous thinking is and what it is not. Even I, your speaker, though a historian, might reasonably be held to the obligation of knowing that.

It is reasonable, ladies and gentlemen, it is reasonable to assume, he would say, that in the course of your education you neglected mathematics, and it is therefore probable or indeed quite certain that, notwithstanding your many accomplishments, you do not quite know or rather, perhaps I should say, you are very far from knowing what rigorous thinking is or what it is not. Of course, as you know, it is, generally speaking, much easier to tell what a thing is not than to tell what it is, and I might, he would say, I might proceed by way of a preliminary to indicate roughly what rigorous thinking is not. Thus I might explain that rigorous thinking, though much of it has been done in the world and though it has produced a large literature, is nevertheless a relatively rare phenomenon. I might point out that a vast majority of mankind, a vast majority of educated men and women, have not been disciplined to think rigorously even those things that are most available for such thinking. I might point out that, on the other hand, most of the ideas with which men and women have constantly to deal are as yet too nebulous and vague, too little advanced in the course of their evolution, too little refined and defined, to be available for concatenative thinking and rigorous discourse. I should have to say, he would add, that, on these accounts, most of the thinking done in the world in a given day, whether done by men in the street or by farmers or factory-hands or administrators or physicians or lawyers or jurists or statesmen or philosophers or historians or men of letters or students of natural science or even mathematicians (when not strictly employed in their own subject), comes far short of the demands and standards of rigorous thinking.

I might go on to caution you, our speaker would say, against the current fallacy, recently advanced by eloquent writers to the dignity of a philosophical tenet, of regarding what is called successful action as the touchstone of rigorous thinking. For you should know that much of what passes in the world for successful action proceeds from impulse or instinct and not from thinking of any kind; you should know that no action under the control of non-rigorous thinking can be strictly successful except by the favor of chance or through accidental compensation of errors; you should know that most of what passes for successful action, most of what the world applauds and even commemorates as successful action, so far from being really successful, varies from partial failure to failure that, if not total, would at all events be fatal in any universe that had the economic decency to forbid, under pain of death, the unlimited wasting of its resources. The dominant animal of such a universe would be, in fact, a superman. In our world the natural resources of life are superabundant, and man is poor in reason because he has been the prodigal son of a too opulent mother. But ladies and gentlemen, our speaker will conclude, you will know better what rigorous thinking is not when once you have learned what it is. This, however, cannot well be learned in a course of lectures in which that knowledge is presumed. I have, therefore, to adjourn this course until such time as you shall have gained that knowledge. It cannot be gained by reading about it or hearing about it. The easiest way, for most persons the only way, to gain it is to examine with exceeding patience and care some specimens, at least one specimen, of the literature in which rigorous thinking is embodied. Such a specimen, he could add, is Dr. Thomas L. Heath's magnificent edition of Euclid where an excellent translation of the Elements from the definitive text of Heiberg is set in the composite light of critical commentary from Aristotle down to the keenest logical microscopists and histologists of our own day. If you think Euclid too ancient, or too stale even when seasoned with the wit of more than two thousand years of the acutest criticism, you may find a shorter and possibly a fresher way by examining minutely such a work as Veronese's Grundzüge der Geometrie or Hilbert's famous Foundations of Geometry or Peano's Sui Numeri Irrazionali. In works of this kind, of which the growing number is rather large, and not elsewhere you will find in its nakedness, purity and spirit, what you have neglected and what you need. You will note that in the beginning of such a work there is found a system of assumptions or postulates, discovered the Lord only and a few men of genius know where or how, selected perhaps with reference to simplicity and clearness, certainly selected and tested with respect to their compatibility and independence, and, it may be, with respect also to categoricity. You will not fail to observe with the utmost minuteness, and from every possible angle, how it is that upon these postulates as a basis there is built up by a kind of divine masonry, little step by step, a stately structure of ideas, an imposing edifice of rigorous thought, a towering architecture of doctrine that is at once beautiful, austere, sublime and eternal. Ladies and gentlemen, our speaker will say, to accomplish that examination will require twelve months of pretty assiduous application. The next lecture of this course will be given one year from date.

On resuming the course what will our philosopher and historian proceed to say? He will begin to say what, if he says it concisely, will make up a very large volume. Room is lacking here, even if competence were not, for so much as an adequate outline of the matter. It is possible, however, to draw with confidence a few of the larger lines that such a sketch would have to contain.

What is it that our speaker will be obliged to deal with first? I do not mean obliged logically or obliged by an orderly development of his subject. I mean obliged by the expectation of his hearers. Every one can answer that question. For presumably the audience represents the spirit of the times, and this age is, at least to a superficial observer, an age of engineering. Now, what is engineering? Well, the Charter of the Institution of Civil Engineers tells us that engineering is the "art of directing the great sources of power in Nature for the use and convenience of man." By Nature here must be meant external or physical nature for, if internal nature were also meant, *every* good form of activity would be a species of engineering, and maybe it is such, but that is a claim which even engineers would hardly make and poets would certainly deny. Use and convenience—these are the key-bearing words. It is perfectly evident that our lecturer will have to deal first of all with what the world would call the "utility" of rigorous thinking, that is to say, with the applications of mathematics and especially with its applications to problems of engineering. If he really knows profoundly what mathematics is, he will not wish to begin with applications or even to make applications a major theme of his discourse but he must, and he will do so uncomplainingly as a concession to the external-mindedness of his time and his audience. He will not only desire to show his audience applications of mathematics to engineering but, being an historian of civilization, he will especially desire to show them the development of such applications from the earliest times, from the building of pyramids and the mensuration of land in ancient Egypt down to such splendid modern achievements as the designing and construction of an Eads Bridge, an ocean Imperator or a Panama Canal. The story will be long and difficult but it will edify. The audience will be amazed at the truth if they understand. If they do not understand the truth fully, our speaker must at all events contrive that they shall see it in glimmers and gleams and, above all, that they shall acquire a feeling for it. They must be led to some acquaintance with the great engineering works of the world, past and present; they must be given an intelligent conception of the immeasurable contribution such works have made to the comfort, convenience and power of man; and especially must they be convinced of the fact that, not only would the greatest of such achievements have been, except for mathematics, utterly impossible, but that such of the lesser ones as could have been wrought without mathematical help could not have been thus accomplished without wicked and pathetic waste both of material resources and of human toil. In respect to this latter point, the relation of mathematics to practical economy in large affairs, our speaker will no doubt invite his hearers to read and reflect upon the ancient work of Frontinus on the Water Supply of the City of Rome in order that thus they may gain a vivid idea of the fact that the most *practical* people of history, despising mathematics and the finer intellectualizations of the Greeks, were unable to accomplish their own great engineering feats except through appalling waste of materials and men. Our lecturer will not be content, however, with showing the service of mathematics in the prevention of waste; he will show that it is indispensable to the productivity and trade of the modern world. Before quitting this division of his subject he will have demonstrated that, if all the contributions which mathematics has made, and which nothing else could make, to navigation, to the building of railways, to the construction of ships, to the subjugation of wind and wave, electricity and heat, and many other forms and manifestations of energy, he will have demonstrated, I say, and the audience will finally understand, that, if all these contributions of mathematics were suddenly withdrawn, the life and body of industry and commerce would suddenly collapse as by a paralytic stroke, the now splendid outer tokens of material civilization would perish, and the face of our planet would quickly assume the aspect of a ruined and bankrupt world.

As our lecturer has been constrained by circumstances to back into his subject, as he has, that is, been compelled to treat first of the service that mathematics has rendered engineering, he will probably next speak of the applications of mathematics to the so-called natural sciences—the more properly called inductive sciences—of physics, chemistry, biology, economics, psychology, and the like. Here his task, if it is to be, as it ought to be, expository as well as narrative, will be exceedingly hard. For how can he weave into his narrative an intelligible exposition of Newton's Principia, Laplace's Méchanique Céleste, Lagrange's Méchanique Analytique, Gauss's Theoria Motus Corporum Coelestium, Fourier's Theorie de la Chaleur, Maxwell's Electricity and Magnetism, not to mention scores of other equally difficult and hardly less important works of a mathematical-physical character? Even if our speaker knew it all, which no man can, he could not tell it all intelligibly to his hearers. These will have to be content with a rather general and superficial view, with a somewhat vague intuition of the truth, with fragmentary and analogical insights gained through settings-forth of great things by small; and they will have to help themselves and their speaker, too, by much pertinent reading. No doubt the speaker will require his hearers, in order that they may thus gain a tolerable perspective, to read well not only the two volumes of the magnificent work of John Theodore Merz dealing with the History of European Thought in the Nineteenth Century, but also many selected portions of the kindred literature there cited in richest profusion. The work treats mainly of natural science, but it deals with it philosophically, under the larger aspect, that is, of science regarded as Thought. By the help of such literature in the hands of his auditors, our lecturer will be able to give them a pretty vivid sense of the great and increasing rôle of mathematics in suggesting, formulating and solving problems in all branches of natural science. Whether it be with "the astronomical view of nature" that he is dealing, or "the atomic view" or "the mechanical view" or "the physical view" or "the morphological view" or "the genetic view" or "the vitalistic view" or "the psychophysical view" or "the statistical view," in every case, in all these great attempts of reason to create or to find a cosmos amid the chaos of the external world, the presence of mathematics and its manifold service, both as instrument and as norm, illustrate and confirm the Kantian and Riemannian conception of natural science as "the attempt to understand nature by means of exact concepts."

In connection with this division of his subject, our speaker will find it easy to enter more deeply into the spirit and marrow of it. He will be able to make it clear that there is a sense, a just and important sense, in which all thinkers and especially students of natural science, though their thinking is for the most part not rigorous, are yet themselves contributors to mathematics. I do not refer to the powerful stimulation of mathematics by natural science in furnishing it with many of its problems and in constantly seeking its aid. What I mean is that all thinkers and especially students of natural science are engaged, both consciously and unconsciously, both intentionally and unintentionally, in the mathematicization of concepts—that is to say, in so transforming and refining concepts as to fit them finally for the amenities of logic and the austerities of rigorous thinking. We are dealing here, our speaker will say, with a process transcending conscious design. We are dealing with a process deep in the nature and being of the psychic world. Like a child, an idea, once it is born, once it has come into the realm of spiritual light, possibly long before such birth, enters upon a career, a career, however, that, unlike the child's, seems to be immortal. In most cases and probably in all, an idea, on entering the world of consciousness, is vague, nebulous, formless, not at once betraying either what it is or what it is destined to become. Ideas, however, are under an impulse and law of amelioration. The path of their upward striving and evolution—often a long and winding way—leads towards precision and perfection of form. The goal is mathematics. Witness, for example, our lecturer will say, the age-long travail and aspiration of the great concept now known as mathematical continuity, a concept whose inner structure is even now known and understood only of mathematicians, though the ancient Greeks helped in molding its form and though it has long been, if somewhat blindly, yet constantly employed in natural science, as when a physicist, for example, or an astronomer uses such numbers as e and π in computation. Witness, again, how that supreme concept of mathematics, the concept of function, has struggled through thousands of years to win at length its present precision of form out of the nebulous sense, which all minds have, of the mere dependence of things on other things. Witness, too, he will say, the mathematical concept of infinity, which prior to a half-century ago was still too vague for logical discourse, though from remotest antiquity the great idea has played a conspicuous rôle, mainly emotional, in theology, philosophy and science. Like examples abound, showing that one of the most impressive and significant phenomena in the life of the psychic world, if we will but discern and contemplate it, is the process by which ideas advance, often slowly indeed but surely, from their initial condition of formlessness and indetermination to the mathematical estate. The chemicization of biology, the physicization of chemistry, the mechanicization of physics, the mathematicization of mechanics, these well known tendencies and drifts in science do but illustrate on a large scale the ubiquitous process in question.

At length, ladies and gentlemen, our speaker will say, in the light of the last consideration the deeper and larger aspects of our subject are beginning to show themselves and there is dawning upon us an impressive vision. The nature, function and life of the entire conceptual world seem to come within the circle and scope of our present enterprise. We are beginning to see that to challenge the human worth of mathematics, to challenge the worth of rigorous thinking, is to challenge the worth of all thinking, for now we see that mathematics is but the ideal to which all thinking, by an inevitable process and law of the human spirit, constantly aspires. We see that to challenge the worth of that ideal is to arraign before the bar of values what seems the deepest process and inmost law of the universe of thought. Indeed we see that in defending mathematics we are really defending a cause yet more momentous, the whole cause, namely, of the conceptual procedure of science and the conceptual activity of the human mind, for mathematics is nothing but such conceptual procedure and activity come to its maturity, purity and perfection.

Now, ladies and gentlemen, our lecturer will say, I cannot in this course deal explicitly and fully with this larger issue. But, he will say, we are living in a day when that issue has been raised; we happen to be living in a time when, under the brilliant and effective leadership of such thinkers as Professor Bergson and the late Professor James, the method of concepts, the method of intellect, the method of science, is being powerfully assailed; and, he will say, whilst I heartily welcome this attack of criticism as causing scientific men to reflect more deeply upon the method of science, as exhibiting more clearly the inherent limitations of its method, and as showing that life is so rich as to have many precious interests, and the world much truth beyond the reach of that method yet I cannot refrain, he will say, from attempting to point out what seems to me a radical error of the critics, a fundamental error of theirs, in respect to what is the highest function of conception and in respect to what is the real aim and ideal of the life of intellect. For we shall thus be led to a deeper view of our subject proper.

These critics find, as all of us find, that what we call mind or our minds is, in some mysterious way, functionally connected with certain living organisms known as human bodies; they find that these living bodies are constantly immersed in a universe of matter and motion in which they are continually pushed and pulled, heated and cooled, buffeted and jostled about—a universe that, according to James, would, in the "absence of concepts," reveal itself as "a big blooming buzzing confusion"—though it is hard to see how such a revelation could happen to any one devoid of the concept "confusion," but let that pass; our critics find that our minds get into some initial sort of knowing connection with that external blooming confusion through what they call the sensibility of our bodies, yielding all manner of sensations as of weights, pressures, pushes and pulls, of intensities and extensities of brightness, sound, time, colors, space, odors, tastes, and so on; they find that we must, on pain of organic extinction, take some account of these elements of the material world; they find that, as a fact, we human beings, constantly deal with these elements through the instrumentality of concepts; they find that the effectiveness of our dealing with the material world is precisely due to our dealing with it conceptually; they infer that, therefore, dealing with matter is exactly what concepts are for, saying with Ostwald, for example, that the goal of natural science, the goal of the conceptual method of mind, "is the domination of nature by man"; not only, our speaker will say, do our critics find that we deal with the material world conceptually, and effectively because conceptually, but they find also that life has interests and the world values not accessible to the conceptual method, and as this method is the method of the intellect, they conclude, not only that the intellect cannot grasp life, but that the aim and ideal of intellect is the understanding and subjugation of matter, saying with Professor Bergson "that our intellect is intended to think matter," "that our concepts have been formed on the model of solids," "that the essential function of our intellect . . . is to be a light for our conduct, to make ready for our action on things," that "the intellect always behaves as if it were fascinated by the contemplation of inert matter," that "intelligence . . . aims at a practically useful end," that "the intellect is never quite at its ease, . . ., except when it is working upon inert matter, more particularly upon solids," and much more to the same effect.

Now, ladies and gentlemen, our speaker will ask, what are we to think of this? What are we to think of this evaluation of the science-making method of concepts? What are we to think of the aim and ideal here ascribed to the intellect and of the station assigned it among the faculties of the human mind? In the first place, he will say, it ought to be evident to the critics themselves, and evident to them even in what they esteem the poor light of intellect, that the above-sketched movement of their minds is a logically unsound movement. They do not indeed contend that, because a living being in order to live must deal with the material world, it must, therefore, do so by means of concepts. The lower animals have taught them better. But neither does it follow that, because certain bipeds in dealing with the material world deal with it conceptually, the essential function of concepts is just to deal with matter. Nor does such an inference respecting the essential function of concepts follow from the fact that the superior effectiveness of man's dealing with the physical world is due to his dealing with it conceptually. For it is obviously conceivable and supposable that such conceptual dealing with matter is only an incident or byplay or subordinate interest in the career of concepts. It is conceivably possible that such employment with matter is only an avocation, more or less serious indeed and more or less advantageous, yet an avocation, and not the vocation, of intellect. Is it not evidently possible to go even further? Is it not logically possible to admit or to contend that, inasmuch as the human intellect is functionally attached to a living body which is itself plunged in a physical universe, it is absolutely necessary for the intellect to concern itself with matter in order to preserve, not indeed the animal life of man, but his intellectual life—is it not allowable, he will say, to admit or to maintain *that* and at the same time to deny that such concernment with matter is the intellect's chief or essential function and that the subjugation of matter is its ideal and aim?

Of course, our lecturer will say, our critics might be wrong in their logic and right in their opinion, just as they might be wrong in their opinion and right in their logic, for opinion is often a matter, not of logic or proof, but of temperament, taste and insight. But, he will say, if the issue as to the chief function of concepts and as to the ideal of the intellect is to be decided in accordance with temperament, taste and insight, then there is room for exercise of the preferential faculty, and alternatives far superior to the choice of our critics are easy enough to find. It may accord better with our insight and taste to agree with Aristotle that "It is owing," not to the necessity of maintaining animal life or the desire of subjugating matter, but "it is owing to their *wonder* that men both now begin and first began to philosophize; they *wondered* originally at the obvious difficulties, then advanced little by little and stated the difficulties about the greater matters." The striking contrast of this with the deliverances of Bergson is not surprising, for Aristotle was a pupil of Plato and the doctrine of Bergson is that of Plato completely inverted. It may accord better with our insight and taste to agree with the great K. S. J. Jacobi, who, when he had been reproached by Fourier for not devoting his splendid genius to physical investigations instead of pure mathematics, replied that a philosopher like his critic "ought to know that the unique end of science is," not public utility and application to natural phenomena, but "is the honor of the human spirit." It may accord better with our temperament and insight to agree with the sentiment of Diotima; "I am persuaded that all men do all things, and the better they are, the better they do them, in the hope," not of subjugating matter, but "in the hope of the glorious fame of immortal virtue."

But it is unnecessary, ladies and gentlemen, it is unnecessary, our speaker will say, to bring the issue to final trial in the court of temperaments and tastes. We should have there a too easy victory. The critics are psychologists, some of them eminent psychologists. Let the issue be tried in the court of psychology, for it is there that of right it belongs. They know the fundamental and relevant facts. What is the verdict according to these? The critics know the experiments that have led to and confirmed the psychophysical law of Weber and Fechner and the doctrine of thresholds; they know that, in accordance with that doctrine and that law, an appropriate stimulus, no matter what the department of sense, may be finite in amount and yet too small, or finite in amount and yet too large, to yield a sensation; they know that the difference between two stimuli of a kind appropriate to a given sense department, no matter what department, may be a finite difference and yet too small for sensibility to detect, or to work a change of sensation; they ought to know, though they seem not to have recognized, much less to have weighed, the fact that, owing to the presence of thresholds, the greatest number of distinct sensations possible in any department of sense is a *finite* number; they ought to know that the number of different departments of sense is also a *finite* number; they ought to know that, therefore, the total number of distinct or different *sensations* of which a human being is capable is a *finite* number; they ought to know, though they seem not to have recognized the fact, that, on the other hand, the world of *concepts* is of *infinite* multiplicity, that *concepts,* the fruit of intellect, as distinguished from sensations, the fruit of sensibility, are *infinite* in number; they ought, therefore, to see, our speaker will say, though none of them has seen, that in attempting to derive intellect out of sensibility, in attempting to show that (as James says) "concepts flow out of percepts," they are confronted with the problem of bridging the immeasurable gulf between the finite and the infinite, of showing, that is, how an infinite multiplicity can arise from one that is finite. But even if they solved that apparently insuperable problem, they would not yet be in position to affirm that the function of intellect and its concepts is, like that of sensibility, just the function of dealing with matter, as the function of teeth is biting and chewing. Far from it.

Let us have another look, the lecturer will say, at the psychological facts of the case. Owing to the presence of thresholds in every department of sense it may happen and indeed it does happen constantly in every department, that three different amounts of stimulus of a same kind give *three sensations such that two of them are each indistinguishable from the third and yet are distinguishable from one another.* Now, for sensibility in any department of sense, two magnitudes of stimulus are unequal or equal according as the sensations given by them are or are not distinguishable. Accordingly in the world of sensible magnitudes, in the sensible universe, in the world, that is, of *felt* weights and thrusts and pulls and pressures, of *felt* brightnesses and warmths and lengths and breadths and thicknesses and so on, in this world, which is the world of matter, *magnitudes are such that two of them may each be equal to a third without being equal to one another.* That, our speaker will say, is a most significant fact and it means that the sensible world, the world of matter, is irrational, infected with contradiction, contravening the essential laws of thought. No wonder, he will say, that old Heraclitus declared the unaided senses "give a fraud and a lie."

Now, our speaker will ask, what has been and is the behavior of intellect in the presence of such contradiction? Observe, he will say, that it is intellect, and not sensibility, that detects the contradiction. Of the irrationality in question sensibility remains insensible. The data among which the contradiction subsists are indeed rooted in the sensible world, they inhere in the world of matter, but the contradiction itself is known only to the logical faculty called intellect. Observe also, he will say, and the observation is important, that such contradictions do not compel the intellect to any activity whatever intended to preserve the life of the living organism to which the intellect is functionally attached. That is a lesson we have from our physical kin, the beasts. What, then, *has* the intellect done because of or about the contradiction? Has it gone on all these centuries, as our critics would have us believe, trying to "think matter," as if it did not know that matter, being irrational, is not thinkable? Far from it, he will say, the intellect is no such ass.

What it has done, instead of endlessly and stupidly besieging the illogical world of sensible magnitudes with the machinery of logic, what it has done, our lecturer will say, is this: it has created for itself another world. It has not rationalized the world of sensible magnitudes. That, it knows, can not be done. It has discerned the ineradicable contradictions inherent in them, and by means of its creative power of conception it has made a new world, a world of conceptual magnitudes that, like the continua of mathematics, are so constructed by the spiritual architect and so endowed by it as to be free alike from the contradictions of the sensible world and from all thresholds that could give them birth. Indeed conception, to speak metaphorically in terms borrowed from the realm of sense, is a kind of infinite sensibility, transcending any finite distinction, difference or threshold however minute or fine. And now, our speaker will say, it is such magnitudes, magnitudes created by intellect and not those discovered by sense, though the two varieties are frequently not discriminated by their names, it is such conceptual magnitudes that constitute the subject-matter of science. If the magnitudes of science, apart from their rationality, often bear in conformation a kind of close resemblance to magnitudes of sense, what is the meaning of the fact? It means, contrary to the view of Bergson but in accord with that of Poincaré, that the free creative artist, intellect, though it is not constrained, yet has chosen to be guided in so far as its task allows, by facts of sense. Thus we have, for one example among many, conceptual space and sensible space so much alike in conformation that, though one of them is rational and the other is not, the undiscriminating hold them as the same.

And now, our lecturer will ask, for we are nearing the goal, what, then, is the motive and aim of this creative activity of the intellect? Evidently it is not to preserve and promote the life of the human body, for animals flourish without the aid of concepts, "without discourse of reason," and despite the contradictions in the world of sense. The aim is, he will say, to preserve and promote the life of the intellect itself. In a realm infected with irrationality, with omnipresent contradictions of the laws of thought, intellect cannot live, much less flourish; in the world of sense, it has no proper subject-matter, no home, no life. To live, to flourish, it must be able to *think,* to think in accordance with the laws of its being. It is stimulated and its activity is sustained by two opposite forces: discord and concord. By the one it is driven; by the other, drawn. Intellect is a perpetual suitor. The object of the suit is not the conquest of matter, it is a thing of mind, it is the music of the spirit, it is Harmonia, the beautiful daughter of the Muses. The aim, the ideal, the beatitude of intellect is harmony. That is the meaning of its endless talk about compatibilities, consistencies and concords, and that is the meaning of its endless battling and circumvention and transcendence of contradiction. But what of the applications of science and public service? These are by-products of the intellects's aim and of the pursuit of its ideal. Many things it regards as worthy, high and holy—applications of science, public service, the "wonder" of Aristotle, Jacobi's "honor of the human spirit," Diotima's "glorious fame of immortal virtue"—but that which, by the law of its being, Intellect seeks above all and perpetually pursues and loves, is Harmony. It is for a home and a dwelling with her that intellect creates a world; and its admonition is: Seek ye first the kingdom of harmony, and all these things shall be added unto you.

And the ideal and admonition, thus revealed in the light of analysis, are justified of history. Inverting the order of time, we have only to contemplate the great periods in the intellectual life of Paris, Florence and Athens. If, among these mightiest contributors to the spiritual wealth of man, Athens is supreme, she is also supreme in her devotion to the intellect's ideal. It is of Athens that Euripides sings:

> The sons of Erechtheus, the olden,
> Whom high gods planted of yore
> In an old land of heaven upholden,
> A proud land untrodden of war:
> They are hungered, and lo, their desire

With wisdom is fed as with meat:
In their skies is a shining of fire,
A joy in the fall of their feet:
And thither with manifold dowers,
From the North, from the hills, from the morn,
The Muses did gather their powers,
That a child of the Nine should be born;
And Harmony, sown as the flowers,
Grew gold in the acres of corn.

And thus, ladies and gentlemen, our lecturer will say, what I wish you to see here is, that science and especially mathematics, the ideal form of science, are creations of the intellect in its quest of harmony. It is as such creations that they are to be judged and their human worth appraised. Of the applications of mathematics to engineering and its service in natural science, I have spoken at length, he will say, in course of previous lectures. Other great themes of our subject remain for consideration. To appraise the worth of mathematics as a discipline in the art of rigorous thinking and as a means of giving facility and wing to the subtler imagination; to estimate and explain its value as a norm for criticism and for the guidance of speculation and pioneering in fields not yet brought under the dominion of logic; to estimate its esthetic worth as showing forth in psychic light the law and order of the psychic world; to evaluate its ethical significance in rebuking by its certitude and eternality the facile scepticism that doubts all knowledge and especially in serving as a retreat for the spirit when as at times the world of sense seems madly bent on heaping strange misfortunes up and "to and fro the chances of the years dance like an idiot in the wind"; to give a sense of its religious value in "the contemplation of ideas under the form of eternity," in disclosing a cosmos of perfect beauty and everlasting order and in presenting there, for meditation, endless sequences traversing the rational world and seeming to point to a mystical region above and beyond: these and similar themes, our speaker will say, remain to be dealt with in subsequent lectures of the course.

CASSIUS J. KEYSER

FOOD AND SANITARY CHEMISTRY IN THE SCHOOLS OF SCIENCE

THIS is essentially a food-producing country. The annual production of food amounts in value to more than twice the combined products of the mines and forests. Mine and forest products may be subjected to more elaborate processes of refining and manufacture and so may be increased in value in greater ratio before reaching the consumer than are the foods, but even when compared as to value of the finished products we find food manufacture among the largest of our industrial enterprises. The annual product of the meat-packing establishments exceeds that of the foundries and machine shops. The product of the flour and grist mills exceeds that of either the rolling mills, the lumber mills, or the cotton mills of the country.

Moreover the majority of the voters find that nearly half their earnings must be spent for food and, with a view to ensuring a just return for this expenditure, have provided for legal regulation and inspection of food which necessitates a systematic chemical and sanitary control on the part of producers and distributers.

Naturally, therefore, in a university so closely identified with the industrial development and economic life of the country as is Columbia, the study of food chemistry has not been neglected.

Development of the Work

Fortunately, too, the policy of the department of chemistry has permitted a broad development of the subject in which the chemical problems connected with the production, standardization, preservation, distribution, and use of food can be properly correlated.

Instruction in sanitary science at Columbia, at least in so far as the Schools of Mines, Engineering and Chemistry are concerned, is carried on jointly and in close cooperation by the departments of civil engineering and chemistry. The courses in sanitary engineering are taught by the former department, while the latter is responsible for the courses which consist chiefly of laboratory work. For convenience of administration and because of community of interest and methods, the courses in sanitary chemistry are grouped with those in food chemistry as a sub-department. It is not to be supposed that the subjects of study and research which have recently been thus recognized and classified were previously ignored—on the contrary, they have had a fairly prominent, though not a segregated, place in the work of the department of chemistry for almost the entire half-century during which applied science has been systematically taught at Columbia.

When for three decades Dr. Chandler lectured three hours per week in each of the four years of the professional course in chemistry and two years to every student of engineering, probably one-fourth of his lectures were devoted to sanitary matters and the food industries, although the terms sanitary and food chemistry were not used in the titles of the courses because in Dr. Chandler's view these were not separate (nor easily separable) topics, but essential members of the general body of chemistry. It is related that when one of his classical colleagues (apprehensive lest the increasing extent to which science was being taught at Columbia might lead to a neglect of the humanities) expressed the opinion that a man ignorant of Latin and Greek was "not fitted to live," Dr. Chandler replied that one ignorant as to the food that he eats and the water that he drinks is not fitted to live "and often doesn't." If there is less of grim literalness in this statement today than there was forty years ago, it is largely due to Dr. Chandler's own labors in the application of science to sanitation and the food industries and to the work done in these fields by men trained at Columbia. Among Dr. Chandler's former students one recalls with only a moment's thought men of national and international reputation as chemists and administrative officers in public health service, as sugar chemists, as constructive workers in the oil and fat industries, as consulting experts whose practice is largely or chiefly connected with sanitary and food problems, and men who have been prominent in the pure food movement, including the present chief chemist of the United States Department of Agriculture.

While the broader aspects of food and sanitation were thus covered by the courses in general and industrial chemistry, the department of analytical chemistry developed courses in food analysis and sanitary water analysis. Needless to say the adequate study of standards and the interpretation and application of the laboratory results soon carried this work beyond the strictly analytical phase. Particularly was this true of the work in food analysis, which rapidly grew to include methods and criteria of research into the nutritive values and utilization of foods and the varied problems arising in connection with the pure food movement. In the later years of Dr. Chandler's active service, he delegated to the officer in charge of food and water analysis the lectures in industrial chemistry which had to do with food industries; and subsequently the courses in microscopic and sanitary analysis have been developed to meet the needs of professional students of chemistry, chemical engineering and sanitary engineering and of the constantly growing group of graduate students in chemistry who desire to fit themselves especially for sanitary and food work.

The department of chemistry is equally interested in producing a few well trained specialists in food and sanitary chemistry and in giving to all its students such training in these branches as every prospective chemist or chemical engineer should have as a part of his professional equipment.

Policy of the Department

In so far as it undertakes to train specialists, the specialization must follow thorough grounding in all the fundamental branches of chemistry. Inquiries from those who wish to take a "special course" in food or water analysis without the preliminary courses in general, analytical, and organic chemistry, are regularly answered in the negative. This policy prevented the influx of special students in food chemistry which would otherwise have resulted when the passage of the "pure food law" suddenly made necessary a largely increased number of food analysts both for the inspection laboratories and for the chemical control of factory operations by food manufacturers; but it has already been fully justified by experience, for the employers, both official and industrial, are realizing that analysts quickly trained by early specialization are seldom useful for other than routine duties and that broad and thorough preparation is quite as essential in food work as in other branches of chemistry.

In sanitary chemistry there are now offered five courses which cover fundamental chemical microscopy and the chemical, physical, bacteriological, and microscopical methods of water and sewage examination. Only through the close coordination of these different phases of sanitary analysis can the student obtain that grasp of the problems of interpretation which is so much more important than the mere acquisition of manipulative skill. In the work in bacteriological water analysis it is necessary to begin with the elements of bacteriology, including methods of culturing, counting, and isolating bacteria before taking up the forms found in water supplies. The microscopical examination involves the identification of various microscopic plants and animals which are often responsible for taste, odor, and turbidity in water. The importance now attaching to the biological examination of water makes it almost necessary for the sanitary chemist to take up these methods or to give up water analysis entirely. Two of the five courses are of graduate character and provide opportunity for those students who desire to extend their knowledge either in the direction of microscopic or sanitary analysis. For the use of students interested in microscopy a considerable collection of mounted specimens of starches, spices, fibers, etc. is being built up.

Courses offered

In food chemistry (including the related work of organic analysis) there are eight courses; one an undergraduate professional course and seven graduate courses, of which five are open to students of chemistry or of chemical engineering in the last years of their professional training. Lecture courses dealing with the general principles of the chemistry of food and nutrition and the chemical technology and scientific and legal control of the food industries are attended by professional students in chemistry and chemical engineering and may be elected by graduate students or sufficiently advanced undergraduates. At present these classes contain students whose primary registration falls under six different faculties, namely applied science, pure science, Columbia College, Barnard College, philosophy, and political science. A course in food analysis, taken chiefly by professional students in chemistry and by graduate students, includes thirty afternoons of laboratory work and thirty hours devoted to discussions of the chemical principles involved in the laboratory methods studied and the interpretation of the analytical data in relation to official standards of purity, normal and abnormal variations in composition, the control of manufacturing processes and the detection of adulteration. Another course of the same length and general character, taken by students of chemistry and chemical engineering, is devoted to the analysis and judgment of organic materials of more strictly industrial application, including some of the foodstuffs and some related substances. Provision is also made for advanced students who wish to give special attention to the nutritional aspects of food chemistry. Seminars and research courses in the chemistry of food and nutrition are now offered in each half of the academic year and in the summer session. In addition, the professor of food chemistry gives courses in nutrition and food economics at Teachers College and the instructor will next year offer to advanced students in chemistry a new course in the chemistry of colloids.

The research work in food chemistry at Columbia was an outgrowth of the instruction in food analysis and related branches of organic analysis formerly taught as a branch of analytical chemistry.

Research and Cooperation

Investigation of analytical methods and the establishment of standards and relationships by means of which properly to interpret the analytical results have, therefore, occupied a considerable share of our attention. Since the appointment of an instructor for this branch of analysis in 1901, there have been published thirty investigations in this analytical phase of the work. For greater definiteness these may be subdivided as follows: (1) Studies of the accuracy of methods used in food analysis and development of improved methods which included, in addition to investigations recorded in about half of the research papers just mentioned, a considerable amount of work done in cooperation with the Association of Official Agricultural Chemists. (2) A series of investigations upon the relation between chemical composition and calorific power of foods and fuels recorded in six papers, the last two of which have as yet been published only in preliminary form. The data thus obtained show with some degree of definiteness the magnitude of the errors involved in calculating heats of combustion from either proximate or ultimate chemical analyses. The heats of combustion of foods can be computed with fair accuracy from the

A CORNER DEVOTED TO ENZYME RESEARCH

SANITARY CHEMISTRY—MAIN LABORATORY

results of proximate analyses, while in the case of coal the ultimate analysis is a much better basis for computing the calorific power, but even this leads to errors larger than were formerly suspected, showing that actual combustion of the coal in an oxygen calorimeter must be resorted to in all important cases. On the other hand, in the case of petroleum oils a relation between density and calorific power was worked out, which permits the calculation of the latter from the former very readily and with a high degree of accuracy. This method of ascertaining the calorific power of petroleum oils was quickly taken up by the United States Bureau of Mines and is now generally employed by users of such oils throughout the country. (3) Four quantitative investigations of the analytical "constants" of oil mixtures to show which of these are, and which are not, additive properties. (4) Eight studies relating to the composition and sanitary properties of milk and the effects of different methods of preservation. It is doubtless largely as a result of these investigations that the department has been called upon to take an active part in the work, first, of the New York Milk Committee, and, more recently, of the National Commission on Milk Standards.

The research work in food chemistry has, however, not been confined to studies of methods and standards. Two other branches which in the past few years have demanded even more of our attention are: Studies of the ash constituents of foods and their functions in nutrition; and the investigation of the enzymes concerned in the industrial and physiological utilization of the foodstuffs.

Studies of the ash constituents of foods, or "inorganic foodstuffs," with reference to their occurrence, distribution and determination in food materials, the functions performed and amounts required in nutrition, and the extent to which these constituents should enter into our consideration of nutritive values and food habits, were begun in 1901 in cooperation with the federal government and, since the concentration of all government nutrition investigations at Washington, have been continued independently as opportunity offered. The results obtained have been published in three technical bulletins from the United States Department of Agriculture and four independent scientific papers. This work appears to have drawn needed attention to an important but previously neglected subject, and to have had a rather wide influence upon the teaching of food chemistry and the trend of research in nutrition.

Research upon enzymes was begun about ten years ago, though no data were published until 1910. Seven papers giving results of enzyme research have appeared during the past four years and the work is now being extended in several directions. Since 1912 the Carnegie Institution of Washington has generously cooperated by providing a research assistant for this investigation. As yet this work has been directed primarily to the study of the amylases, but as the best amylase preparations have been found to be proteases and maltases as well, the investigation is being broadened to include the study of the enzymes which split proteins and maltose as well as those which act upon starch. The most interesting results thus far have been obtained in connection with the purification of the enzymes and the study of their chemical nature. From the pancreas and from malt (*i. e.,* from both animal and vegetable sources) preparations have been made which represent a much higher concentration of active enzyme than had previously been obtained and of which numerous specimens independently prepared were sufficiently uniform in properties to suggest that the product approximates a pure substance. Both of these substances have been found to be of protein nature. This advance in our knowledge of the chemical nature of enzymes is being followed up by more detailed studies in the same direction and by quantitative investigation of the activities of the enzymes under various conditions, the latter investigations having obviously a much greater significance now that it is possible to employ the enzymes in a purified condition instead of depending upon the crude extracts which alone have been available to most previous investigators.

In sanitary chemistry facilities for research have only recently been collected and coordinated. Extended investigations upon air and water had been carried on in the analytical and industrial laboratories, largely in cooperation with the Rapid Transit Commission and the Metropolitan Sewage Commission. Under the present organization, the laboratory of sanitary analysis continues to cooperate with the city through the assistant professor and instructor in sanitary engineering, while the instructor in sanitary chemistry with some of his more advanced students is engaged in independent research upon methods of sanitary analysis and upon problems of water softening and purification.

In addition to the cooperative investigations already mentioned, the officers in charge of food and sanitary chemistry are constantly receiving requests to take part in movements for making more effective the newer knowledge of nutrition and sanitation. The present staff cannot, without detriment to their teaching and research, embrace more than a small fraction of these opportunities for public service. During the past few months informal advisory service has been rendered to several civic organizations, especially in connection with the educational problems of the pure food movement. An invitation to take part in the course of public lectures upon the principles of healthy living at the American Museum of Natural History was accepted, and at the solicitation of the American Museum of Safety and Sanitation the department has assumed responsibility for representation of problems of food and the feeding of industrial workers in the Museum's Monthly Bulletin, "devoted to the safety, health and welfare of industrial workers and the advancement of the science of industry." The professor of food chemistry has also accepted appointment as a member of the advisory council of the New York City Department of Health.

H. C. Sherman

THE DEPARTMENT OF ELECTRICAL ENGINEERING

IT is an interesting coincidence that this year which marks the fiftieth anniversary of the School of Mines also marks the twenty-fifth anniversary of the establishment of the department of electrical engineering, which is, therefore, one of the older departments of the school, although as a profession electrical engineering is of more recent origin than those represented by other departments of the school. Instruction in electrical engineering was first given in the later eighties and in 1889 the department of electrical engineering was formed to give a systematic course of instruction in the subject leading to the degree of E.E. Columbia was one of the first institutions to form a department of electrical engineering and the first to grant the degree of E.E. Professor F. B. Crocker and Professor M. I. Pupin formed the first instructing staff, the former giving the technical and practical instruction while the latter gave the instruction in the theory and principles. This policy of balancing the technical and theoretical sides of the instruction and having them given by different individuals of different training has been fixed in the department ever since.

The earlier classes consisted altogether of men who had received the degree of E.M. or C.E. These classes averaged four or five men. At this time recognition was first being given to the applications of electrical machinery. The telephone and telegraph had established their claim, the electric light and the electric railway had proved their possibilities but further applications such as to manufacturing and mining were merely a subject for speculation. The public, however, had begun to recognize the possibilities of the application of electrical machinery, boys began to experiment with electrical apparatus and they and their parents began to consider the possibilities of this work as a profession. As a consequence there were many inquiries for a course in electrical engineering to be entered by students graduating from a high school, and it was recognized by the University authorities that this training and profession should be on a par with that of the other professions and not an accessory to it, that it was a profession in itself and not a specialized form of another profession. It is interesting and indicative of the foresight of the Columbia authorities that they recognized this condition in 1891, for time has shown that they were correct and other technical schools one by one adopted the same plan at a much later date. In October, 1892, the first class entered for the regular four year undergraduate course on the same basis as the students in mining and civil engineering and chemistry, which were the professions previously recognized. From this time on there was much talk about the great future of electrical engineering, the enormous growth that was sure to occur, and large numbers of young men chose this profession for their life work, some because they were interested in physics and electrical phenomena and many merely because they thought there was money to be made in the new line of business. The demand for men was sufficient at first to absorb all these men in spite of the fact that some were not adapted by temperament for the work. Many other institutions established electrical engineering courses and the supply of graduates became greater than the demand. Those who were unsuited to the work found themselves not succeeding as they had hoped and word was passed around that the electrical profession was overcrowded. Many of those unsuited to the work transferred their activities to other lines of work and the number entering the school gradually decreased. This has continued for some years until now the demand for graduates in electrical engineering each year is in excess of the supply since, owing to the usual inertia of public opinion, the number of men taking up the work has not increased in proportion to the growing demand, and then the courses are now so arranged that those not suited to the work are weeded out early in the course. The conditions at present are such that the large electrical manufacturing and operating companies have several agents actively engaged in visiting the various institutions where electrical engineering is taught in an endeavor to persuade the most promising men of the graduating class to enter their employ in order to secure the necessary recruits for their forces.

In 1898, just after the establishment of the department of mechanical engineering at Columbia, courses in electrical engineering were given to the students of that department, this being the first time that students of other departments attended courses in electrical engineering. In 1902 the students in all branches of engineering began taking the elementary electrical engineering courses, one course in each of the two terms of the second year. In 1903 courses in electric lighting and in the direct current laboratory were first given to all students in their third year, and in 1908 a course in the alternating current laboratory was given to all students in their fourth year. Since that time the department of mechanical engineering has added two courses, one on the application of motors and one on alternating current machinery in the fourth year, and the department of civil engineering has added two courses, one on electric railways and one on alternating current machinery in the fourth year. In 1911 the course on the elements of electrical engineering, given in the first term of the second year to all engineering students, was transferred to the department of physics, and it has since been enlarged to include laboratory work. This is the original course first given in 1902 to all students; it has since become the fundamental and prerequisite course for all electrical engineering courses.

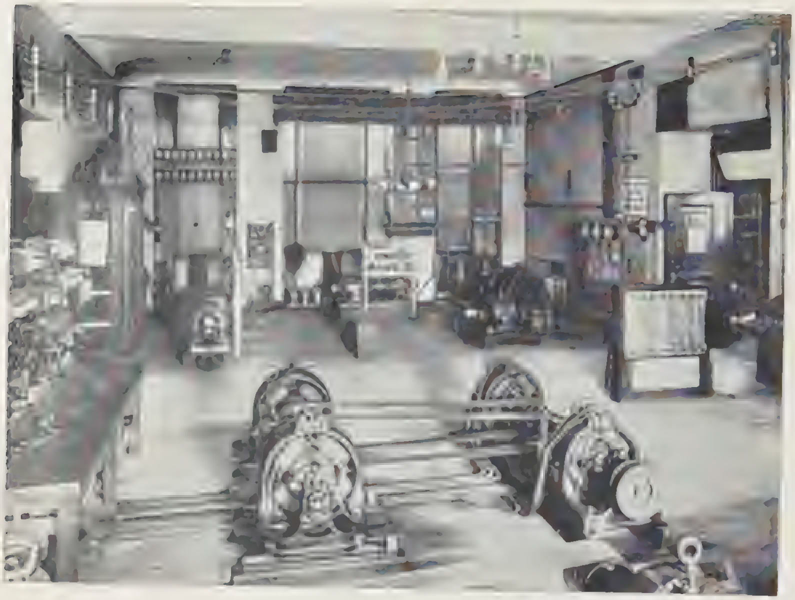
Object of the Course

The object of the course is threefold: firstly, by means of a study of applied science to cultivate judgment in the student by teaching him to analyze problems and reason from cause to effect; secondly, to give a broad, general engineering education which will be of value in any line of activity, whether in electrical or some other form of engineering or even in commercial work; and, thirdly, to give the student a preparation in the specialized knowledge of one profession in order that he may immediately understand terms and methods and thus the sooner be of value to an employer, and eventually master the more complex problems which would qualify him as a specialist in electrical engineering.

Preparation for the Course

In accordance with the new plans for the graduate course in engineering which go into effect this summer, the prospective student is required to have a broad general scientific training before he may be admitted to the School of Engineering. The requirements for entrance to the graduate engineering work are briefly as follows:

Mathematics—algebra through determinants, complex numbers,



ALTERNATING CURRENT ELECTRIC LABORATORY, SCHOOL OF ENGINEERING

ELECTRICAL INSTRUMENT LABORATORY, SCHOOL OF ENGINEERING the theory of equations and partial fractions. Analytical geometry through conic sections and the elements of three dimensional geometry. Calculus, differential and integral.

Physics—heat, light and electricity with one year of laboratory work. Mechanics through harmonic motion, resonance and hydrostatics, also coplanar statics.

Chemistry—general and qualitative analysis.

Drafting—engineering drafting, topography and descriptive geometry.

Surveying—theory of plane surveying and triangulation, including field work.

Shop work—wood-turning, forging, foundry and machine shop practice.

In addition a certain amount of general work is required in English, history, mineralogy, philosophy and in two modern languages.

A special course has been arranged in Columbia College in order that a student may complete this preparation in three years after leaving the preparatory school, and by the addition of a small amount of elective work to the above prescribed course, a student will obtain the degree of B.S. before entering the engineering school. By this arrangement a student is expected to begin his preparation for professional study at an age one or two years earlier than he would enter the present engineering course and as a result of spending six years altogether, three in preparation and three in professional work, he will finish possibly at the same age or at most one year later than with the present four year course. Thus the change from four years to six does not mean that the student will be two years older when he graduates, but that the School of Engineering will endeavor to direct his training two years earlier.

Description of the Course

The graduate course in electrical engineering consists primarily of a group of studies in civil, mechanical and chemical engineering and metallurgy, in order that the graduate will be primarily an all around broad engineer, and along with this general engineering education a little less than half the total time is devoted to purely electrical subjects. The student of electrical engineering will spend forty-six per cent. of his working time for three years on electrical subjects, twenty-seven per cent. on mechanical engineering subjects, ten per cent. on chemistry, nine per cent. on physics and the balance, eighteen per cent., on miscellaneous subjects.

The courses in electrical engineering, in accordance with the established policy of the department, are designed to teach the principles rather than the details. They may be divided into three general classes, theoretical, technical and practical. The theoretical courses are given mostly by the department of electro-mechanics. These courses give the student an insight into the application of the fundamental principles to the phenomena of electrical engineering and the method of treating these phenomena by mathematics. These courses are usually the most difficult for the student, but they are of the greatest importance inasmuch as they are not easily acquired after leaving college. There is at least one of these courses in each term throughout the whole three years.

Closely paralleling the theoretical courses are the technical courses which point out the application of the principles laid down in the theoretical courses and show the use of those principles. They are intended to familiarize the student with the terms, practices, instruments and appliances of the profession by a description of the machines, a discussion of their principles and a description of their operating characteristics. Problems are given in these courses which require a concrete application of the principles learned. Of this class of courses are the elements of electrical machinery in the first graduate year, electrical distribution and electrical communication in the second year, and alternating current machinery, applications of electric motors and electric railways in the final year.

The practical courses are those of the laboratory and drafting-room, which are in their chronological sequence: Direct current laboratory, design of direct current machinery, standardizing laboratory, photometric laboratory, alternating current laboratory and design of alternating current machinery. These courses are arranged in parallel with the lecture courses treating the same subjects and are always preceded by an elementary course on the subject. Among the various experiments performed and investigations undertaken in these courses are the following of more than ordinary interest: Testing for faults on a generator; complete tests on a railway motor equipment; parallel operation of alternating current generators just as they are operated in the large power stations, including measurement of all variables, such as circulating current, power factor and phase shift; complete tests of polyphase circuits, including the study and measurement of upper harmonic currents and voltages in various connections; practical experience in the use of curve tracing apparatus, such as the ondograph and oscillograph, for the study of special occurrences in alternating and direct current circuits; calibration and standardization of instruments; measurement of the distribution of light and the economy of different forms of lamps; design of a direct current generator and motor and of an alternating current generator, motor and transformer. These practical courses, besides teaching their own particular lessons, serve to keep up the students' interest in the theoretical courses.

Columbia has granted the degree of E.E. to three hundred and eighty two men, about seventy-five per cent. of whom have continued in electrical engineering, either technical, commercial or financial, while the remaining twenty-five per cent. have changed to other fields of activity. Among the graduates are two past presidents of the American Institute of Electrical Engineers, two presidents of large corporations, several members of the New York Stock Exchange, several engineering salesmen, several consulting engineers, as well as scores of engineers of manufacturing and operating companies.

The department of electrical engineering gives at least two lecture courses and two laboratory courses to every student pursuing any of the work under the Schools of Mines, Engineering and Chemistry. This work for the students from other departments is considered by the members of the department as of very great importance. These courses are given by the senior members of the instructing staff and the supervision of the work in the laboratories is made as thorough as the size of the staff will allow. Unfortunately, for two or three years past the size of the classes has been so great as to severely overtax the size and equipment of the laboratories, inasmuch as there has not been sufficient apparatus to permit of dividing the classes into squads of as small units as was desired. The laboratories are in need of additional equipment.

The department offers five courses under the management of the summer session and extension teaching. Three of these are given in the summer session, are of the grade of the regular academic courses and are attended partly by students of the regular winter session and partly by instructors from other institutions who come only for the summer session. Two courses are given in the evening throughout the academic year. These are intended to teach in a simple manner the principles of electrical engineering to the artisan and engineer who has not the time or prerequisite education for the regular day course. The night courses are in sequence, requiring two years to cover the ground, and are illustrated by demonstrations in the laboratories of the department.

The department has been giving a postgraduate course in electrical engineering and in radio-engineering to eleven officers of the U. S. Navy in accordance with an arrangement between the University and the Navy Department at Washington.

Among the various activities of the department aside from the work with the regular students is the work of the department for the city of New York. By the terms of a contract between the University and the city, the department serves as an electrical laboratory and consulting engineer for the city. This involves testing for fire hazard a sample of every electrical device which is used on the electric service in the city before it is approved by the city inspectors for use in the city, also the testing of any apparatus purchased for the public buildings of the city, and finally the testing of the watt-hour-meter of any resident of the city who may complain to the city of his meter.

W. I. SLICHTER

THE DEPARTMENT OF METALLURGY

AT this time, when the School of Mines is about to celebrate its fiftieth anniversary, it is interesting to note, that when the School was first established in 1864, instruction in metallurgy occupied a most important part in the curriculum. This was perfectly natural, as Professor Thomas Egleston, the founder of the School of Mines, was the first professor of metallurgy and mineralogy, and occupied this chair until the time of his death in 1900. At the beginning, and for many years afterwards, however, metallurgy like geology and other subjects was given to mining engineers in a very general way, as a part of their course, and no specialization was made in this subject. In fact, it was hardly necessary, for in the early days mining engineers were their own metallurgists, and the science of metallurgy had not advanced to such a point that special instruction was necessary. For that reason very few men took the regular metallurgical course, although the degree was provided for from the very beginning.

In recent years, however, conditions have changed and metallurgy has become such an important profession that it has been found absolutely impossible to give students taking a course in mining engineering a sufficient amount of metallurgical work to enable them to become metallurgists as well. For this reason, instruction has been changed so as to give the mining engineers, chemical engineers and chemists all of the metallurgy that they can spare the time to take, while the metallurgical course itself has been planned so as to meet the requirements of the metallurgical world as far as is possible. As a result, the number of students taking the course in metallurgy is increasing annually, and even with this increase it is not possible to fill all of the positions we are called upon to supply metallurgical engineers for with our graduates. Metallurgy at the present time not only includes the extraction of iron, copper, lead and other metals from their ores, but the manufacture of alloys, the microscopic examination of metals and compounds, and metallography, which is now a most important part.

When Columbia moved from its old site on forty-ninth street to Morningside Heights, no provision had been made for the department of metallurgy, which was therefore housed in the basement of Havemeyer building. In 1904, the School of Mines building was provided by the generous gift of Mr. Adolph Lewisohn, and this building has since been the home of the departments of mining and metallurgy, the lower floors being occupied by the former and the upper floors by the latter. In 1912, assaying was transferred from the department of chemistry to metallurgy, and provision was made for an assay laboratory on the sixth floor of the Mines building. This laboratory is conceded to be one of the best in the country, and by means of individual gas-fired muffle furnaces, the students are capable of obtaining the maximum amount of instruction in the time allotted to them. During the past year the ferrous, non-ferrous and metallographic laboratories have been completely overhauled and provided with additional equipment. Machinery for an electro-metallurgical laboratory has been placed in the non-ferrous laboratory on the fourth floor of the Mines building—this having been made possible by the gift of Mr. J. Parke Channing.

Commencing with the coming academic year, the course in the engineering schools will be changed from a four-year course to a three-year graduate course or advanced course in engineering, following a collegiate course in which the candidate must have received a degree of bachelor of science and taken certain prescribed courses that are required for entrance to the engineering schools.

In the three-year graduate work the courses are arranged so that in the first and second year the students will receive final instruction in physics, mechanics, geology and mineralogy. Courses in mechanical and electrical engineering are given to the students in the first year, continued through the second, and completed in the third year with important laboratory experiments. In the second year instruction in metallurgy begins, and a large portion of the work in the third year is devoted to this subject, especially in laboratory work. Instruction is given to the metallurgical students in the methods of mining, mine and mill construction, and ore dressing, so that they will fully understand the general principles of mining work and the relation of mining to metallurgy.

During the summer, between the first and second years, the students are engaged in surveying at Camp Columbia for a total period of eight weeks, and during this time they receive instruction in general, mine and railroad surveying. Between the second and third years, the students attend the summer school in geological field work for one week and then for a period of six weeks are required to visit metallurgical plants in various portions of the United States, at first under the supervision of an instructor and afterwards in small squads. This field work consists of observing general metallurgical operations and metallurgical machinery, making notes and sketches and finally submitting a report on a certain assigned plant.

The several laboratories of the department of metallurgy are fully equipped for experimental and research work. The new electrometallurgical laboratory and large metallographical laboratory are important additions, which will enable the department to give students advanced work in these two branches of metallurgy.

The scope of metallurgical work at this time is hardly appreciated, but when one considers the enormous increase in the production of the principal metals, such as iron, copper, lead, etc., during the last fifty years and realizes that in producing these metals from the ores the skill and ingenuity of the metallurgist are necessary, then the importance of this branch of engineering is fully recognized. Not only has the production of these metals increased so enormously but certain metals, such as copper, are now produced from ore which only a few years ago was considered worthless.

These results have not been accomplished by metallurgical work alone, however, but by the combined influence of mechanical and electrical engineering as well. A successful metallurgist to-day must not only be thoroughly conversant with metallurgical practice proper, but must combine with this a sufficient knowledge of other engineering work. The three-year graduate course in metallurgy will be arranged so as to fulfill these requirements.

A. L. W.

REV. EDWARD B. COE, S.T.D.

BY the death of the Rev. Dr. Coe, which occurred on March 19, the University has been deprived of one of its most devoted and efficient trustees. Almost continuously since his election to the board in 1896 until his health gave way a year ago, he had taken an active part in the affairs of the University, serving for a large part of that time as chairman of the committee on education. In this office his quick perception and sound judgment made him an invaluable advisor and his deep interest in the work of the University insured the most careful consideration on his part of all its problems.

Dr. Coe was born at Milford, Connecticut, June 11, 1842, and was graduated from Yale in 1862. He studied at the Union Theological Seminary from 1862 to 1863, and in France and Germany from 1864 to 1867. He received the honorary degree of D.D. from Rutgers in 1881, and that of S.T.D. from Yale in 1885. He was Street professor of modern languages at Yale from 1864 to 1879; was ordained to the ministry of the Dutch Reformed Church in America in 1879 and became pastor of the Collegiate Church, where he remained until 1896. Since that time he had been senior pastor. He was president of the General Synod of the Dutch Reformed Church, and a trustee of Rutgers College, of Robert College, Constantinople, and of Leake and Watts Orphan House. He had also been manager of the Presbyterian Hospital, and was the author of "Life Indeed," published in 1899.

As a man, Dr. Coe was greatly endeared to his associates by his charming personality and by the spirit of kindliness, which characterized his every act, as well as by his broad-minded and courageous attitude toward every difficult situation. As a member of the board, he did his full part toward the upbuilding of the University and his feeling toward it was expressed in a remark which he made to the writer on one of the last occasions when he was able to attend a meeting of the trustees, "I want you to know and to remember that my association with Columbia has been one of the happiest experiences of my life."

J. B. P.

REV. EDWARD B. COE, S.T.D.

COLUMBIA IN CHINA

IF the Atlantic Ocean was the center of the world's interest for three centuries and a half following the discovery of America, its place is being taken by the Pacific. Within the last sixty years, from the moment when Commodore Perry gave the signal for the entry of Japan into intercourse with the nations beyond the confines of Asia to the day of the recognition of the Republic of China, a marvelous process of transformation has been at work in the Far East, which is fraught with the gravest significance to the future of humanity. Once so much alike in their relative stagnation, the two states now offer contrasts as remarkable as they are instructive. Poor, secluded, obscure, unimportant Japan has become one of the great powers of the earth, and its ambitions, no less than its limitations, are in a measure known. China is still the land of untold possibilities, the fascinating land of the puzzle.

Unlike its eastern neighbor, China is huge in bulk, and its natural resources are incalculable in their wealth. Its population, though enormous, is comparatively small for the area it covers. As the seat of the oldest surviving civilization, it has ever been the object of a keen curiosity, which a Great Wall of racial pride and of hostility to the foreigner has long barred from even partial satisfaction. Indeed, the Chinaman to-day is as indifferent to the world at large as the Japanese is inquisitively eager to learn about it.

Unlike Japan, China has not been a land of martial memories and ideals, but rather one of scholars and merchants. It has not inherited from a militant feudalism of the later Middle Ages an organization and a temperament that were readily convertible into the terms of a modern army and navy. While in Japan commerce and all it connoted were despised, while there the trader was quite the lowest in the social scale, the reverse was true in China. Here the needs and usages of business were held in high esteem, and the standards of commercial honor were raised accordingly. Literature and trade were regarded as occupations worthier than that of warfare, and the scholar above all was the man to be revered.

Instead of being secluded as was Japan in a small group of islands, where conditions of the sort just described bred an intense and pervading consciousness of nationality, a zealous patriotism, an ardent loyalty animated by a spirit of self-sacrifice which set no bounds to its devotion, China rested in a vast expanse of isolation and divergence. Made up of provinces, almost any one of which alone was larger than the whole of Japan, and inhabited by peoples of widely different races, religions and languages, China could have no realization of nationality other than that of the community, or at the utmost of a particular province. Patriotism, so far as it existed at all, was perforce a local sentiment. Owning no general allegiance, except to a remote imperial power represented by officials whose chief function apparently was the exaction of tribute, the Chinaman was peculiarly a creature of his immediate environment. He thought only of himself and his personal interests. Should he wish to communicate with his countrymen outside of his linguistic pale, he had to use a dialect that was in no sense an official speech, even if it were the language of officials. The real control of affairs was not in the hands of imperial functionaries. It lay rather with the numerous and intricately organized merchant and craft gilds, or belonged to the head men of villages or towns chosen by the members of the community itself. Disputes were settled under their auspices, and systematic procedure under laws and courts was virtually unknown.

In the case of Japan, contact with the western world strengthened a conviction that only so much of the scientific and political experience of the states lying within that area should be taken over as would insure the realization of four primary objects. These were the defence of the country against the possible rapacity of occidental land-seekers and concession hunters; the guaranty of adequate recognition in international concerns; security for the preservation of the essential features of the Japanese type of civilization in its social and moral aspects at least, and an assurance to the country at large of a wide field of expansion for its surplus population. To these ends an imitative and adaptive instinct, seemingly latent in the oriental mind, was called into play, so that the most effective forces of European life on its material side might be utilized to the fullest degree. This in its turn was seconded by a shrewd, if unscrupulous, diplomacy, and by a commercial policy of kindred sort, both of which were aimed at the ultimate attainment of freedom from dependence upon foreign models, relief from foreign instruction and riddance of foreign importations.

Apart entirely from the fact that the process of opening China to occidental influence began somewhat later than was true of Japan, the conditions in China, as they have been sketched by way of contrast, show how impossible it is that the course of development there should bear any marked amount of resemblance to what has taken place in the island empire. With all their adoption of the mechanical devices and political institutions of the western world, the Japanese have retained, as might be expected, the traditions and usages associated with their ancient monarchy. The Chinese, on the other hand, have chosen to start definitely on their career of modernization under the aegis of a government republican in form. Nor is the break with the past so abrupt as it might seem. Given the characteristics and environment of the Chinese, the strength of the ties that have bound them to particular localities, rather than to an imperial personage or even to the country at large, their veneration for the man of learning, their indifference to the kind of government prevailing so long as they themselves were left reasonably secure in the enjoyment of their customs and pursuits, the establishment of a republic is not surprising.

But if the transition to the new régime in name was quite easy of accomplishment, the task of directing the hundreds of millions of people who dwell in the vast territories of China along the lines of modern progress is one that calls for an assertion of the highest powers of constructive statesmanship. To this end the knowledge and experience of other lands must be levied upon so far as they may serve to lighten the path of advancement. The guidance of the native statesman, therefore, has to be supplemented by that of the native student familiar with the conditions of his own land, yet trained in the ideas and practices of foreign countries, and by the advice of the foreigner expert in matters of government.

Among the younger men who are thus actively promoting the development of the Republic of China, no fewer than ten graduates of Columbia University hold positions of prominence. In the administrative and legislative branches of the government, and in the field of education, they are contributing with brilliant success to this process of transformation, which is drawing China out of its seclusion of ages and enabling it to take its place among the great nations of the world. Columbia College, the Schools of Applied Science, Teachers College, and especially the Faculty of Political Science, are all ably represented by former students, who are carrying the message of western civilization to what was once the oldest of monarchies and is now the youngest of republics.

The list of these Columbia men includes H. C. Chen, Ph.D. 1911, chairman of the National Executive Committee of the Confusian Association, a body organized for the purpose of making Confucianism, if not the state religion, at least the basis of moral instruction in the schools of the country; H. L. Yen, A.M. 1909, Ph.D. 1911, chief secretary of the Waichiao Pu, or Ministry of Foreign Affairs; V. K. W. Koo, A.B. 1909, A.M. 1910, Ph.D. 1912, secretary to the President, and councillor of the Waichiao Pu; C. H. Chu, A.M. 1912, senator representing the Chinese citizens resident in America, and one of the six members of the Senate who are elected by Chinese citizens living in foreign countries; C. Y. Liu, E.M. 1911, technical expert in the Ministry of Industry and Commerce; T. H. Chen, A.M. 1911, professor of mathematics in the Peking University; S. T. Ma, A.M. 1911, representative in Congress from the Province of Kwangtung; T. Y. Wen, Ph.D. 1911, professor of mining and mineralogy in the Government University at Peking; C. S. Huang, A.B. 1910, A.M. 1911, research member of the Currency Commission, and W. S. Shan, A.M. 1910, councillor of the Ministry of Finance. Of these ten the four last mentioned were absent from Peking at the time the accompanying picture was taken. The ten form the nucleus of a Columbia University Chinese Alumni Association now in course of organization.

Nor is the influence of Columbia in China confined to the labors of its former students: the faculty, also, has been called into service. In his capacity of legal advisor to the Chinese Government, Professor F. J. Goodnow is lending his great knowledge of comparative constitutional law to the arduous work of framing a permanent constitution for the new state.

Whether or not the republic will endure, and a mighty Chinese nation arise, must depend in no ordinary measure upon the character and abilities of the men who have been chosen to guide it through the perilous stages of its early growth. That the sons of Columbia are given so noteworthy a share in helping to solve one of the most transcendent problems that has ever taxed the ingenuity of man, is a tribute to Columbia scholarship, no less than a source of gratification to the American people.

WILLIAM R. SHEPHERD

EDITORIAL COMMENT

Fiftieth Anniversary of the School of Mines

Two or three years ago a little group of officers sat chatting after lunch in the Faculty Club, enjoying one of those delightful and illuminating conversations which are characteristic of this social part of the university life. The Lieber professor of history related to his colleagues that among the papers left by the famous teacher, after whom his chair was named, was a letter in which about the middle of the last century, Professor Lieber expressed his anxiety about the choice of the most promising career for one of his sons. In the end the unknown mountainous west appealed to him and he concluded that it must contain great mineral wealth which would certainly be developed in the years then impending. He therefore decided to send his son to the mining academy at Freiberg in Saxony, that the young man might be trained to aid in the growth of this portion of the country and find his career in mining.

The feeling expressed by Professor Lieber was doubtless shared by others. It was intensified by the gold discoveries in California which shortly followed, and by the subsequent opening of deep mines. A constituency not entirely unprepared to be convinced was therefore ready when Thomas Egleston, A.B. Yale 1854, and graduate in 1860 of the École des Mines of Paris, urged upon the trustees of Columbia College, in 1863, the desirability and importance of establishing the first distinctive school of mines in the United States. In 1864 the courses began, so that 1914 marks the fiftieth anniversary, and the coming commencement season is the time for celebrating a half century's progress. Starting as a school of mines, pure and simple, this branch of Columbia's work became gradually a technical school in the broadest sense; special courses in metallurgy, geology and chemistry were established in 1868, civil engineering was added in 1869, and architecture appeared in 1881. Just twenty-five years ago electrical engineering had its inception and in 1897 mechanical engineering was added to the others. The graduates have done yeoman service in all these branches, but perhaps most distinctively so in mining, because of the unique position long held by the school. In all quarters of the globe their work has drawn admiring attention to their *alma mater*. A joint committee of trustees, faculty and alumni has arranged exercises as follows: registration of returning graduates begins on the afternoon of May twenty-eighth. A large reception of alumni and their families, of invited guests from sister institutions, and of officers of the national technical societies will take place in the gymnasium the same evening. A convocation will be held in the gymnasium on the following morning with addresses by Hennen Jennings, past president of the Institution of Mining and Metallurgy of Great Britain, but now a resident of Washington and one of our most distinguished American engineers; and by T. A. Rickard, of London, long a resident and distinguished engineer in this country, now, however, wielding a singularly gifted pen in the technical press. Honorary degrees will be conferred upon a number of graduates who have done specially praiseworthy work in the profession of engineering. In the afternoon the first award of the Chandler gold medal will be made for eminent service in applied chemistry, and later on the departments of the faculty of applied science will welcome their old students, each in its own quarters. In the evening a great banquet will be held at the Waldorf.

These anniversary exercises are meant to be not only a notable and impressive gathering of engineers, but also an "old home" rally of graduates returning after years of absence to their *alma mater*. Ties will be renewed with the professional school in which they were trained for service. All the officers in the engineering departments and the related ones of physics, chemistry, mathematics, geology and mineralogy are keen to welcome back their old students and friends, and to show to those whose memories are limited to Forty-ninth Street the inspiring surroundings of Columbia's present home.

Sigillum Collegii Regalis

The volume known as the "Matricula of Kings College" contains much of ancient history besides the names of the matriculants, including the elaborate description of "The device of the College seal" which is printed on page 19 of the History of the University. The book also contains a list of the "Benefactors of Kings College," in the handwriting of President Samuel Johnson, from which it appears that "Mr. George Harison presented us with the Engraving of the Seal which cost 10 Guineas." Mr. Harison, the donor, was a vestryman of Trinity Church, from 1752 to 1765, and no doubt was closely associated with the founding of the College, though he never became one of its Governors. It might be supposed that his gift would have been guarded with the utmost care, not only on account of its intrinsic value, but as representing the corporate existence of the College, yet the seal was one of the College possessions which disappeared either at or before the Revolution.

The loss of the original seal, however, was inestimable and seemed irreparable, for it could hardly be supposed that it would ever be found after the lapse of more than a hundred years. It is therefore as surprising as it is gratifying that the original seal has at last been discovered and rescued after having been since 1809 in the possession of a family in Williamsport, Pennsylvania, and is now in the custody of the successors of the Governors of Kings College to whom it was presented in 1756. The authenticity of the seal is beyond question, as not only does the design correspond exactly with the description, but on the back of the die is engraved: "The gift of George Harison to Kings Colledge at New York in America 1756." In point of interest and historic importance, as well as association, the seal belongs with the original charter and the cornerstone and crown of Kings College.

Professional Appointment in Extension Teaching

No action previously taken by the University authorities has done more to make effective the work in University Extension than the recent one establishing the professional rank for teachers in the Department of Extension Teaching. This step is both a recognition of the work done by the department and of the obligation of the University to meet so far as possible the intellectual and educational needs of the public within the reach of its immediate influence. In state universities it has been comparatively easy to recognize the obligation of the institution to meet the needs of the large group of irregular students capable of profiting by some type of university instruction, but unable to devote all their time to such work or to place themselves unreservedly under the influence and control of the institution. But with endowed institutions, neither the teaching staff nor the authorities have so readily recognized this responsibility. It is true also that the public has not cooperated so fully as in England. It is often said that this is chiefly due to the disinclination of the American professor either to do this work or to consider it as within the function of the university. Though there may on the part of the professor be lack of sympathy with this particular type of work there is no disinclination on the part of the Columbia staff to take its share of the burden of gratuitous public service. This is shown by the recent investigation of the participation of members of the Columbia staff in public activities. But the fact remains that in general on the part of the American professor there has been a disposition to consider the university extension work as undignified or at least unworthy of scholastic recognition or hearty support.

While Columbia has been doing its share of extension work, and for many years has recognized much of it as worthy of university credit, yet this recent action alone places such work on its proper academic basis.

Such professorial appointments are made upon recommendation by the Administrative Board of Extension Teaching which in turn acts only upon the recommendation of the University department directly interested. Immediately following the adoption of this policy, appointments to the rank of assistant professor were made, in English, in physics, and in political science, upon recommendation of these departments.

Fine Arts in the University

The dissolution of the agreement between the National Academy of Design and the University, which has recently been affected by mutual consent, is by no means to be regarded as an abandonment by the University of instruction in the fine arts, but on the contrary as a step towards the adoption of more effective means of accomplishing the object in view. The action was taken upon the recommendation of the faculty and of the University Council who point out in their report that the conditions and requirements of the schools of architecture, music, and design differ so widely as to call for different methods of organization and administration. The school of architecture is in reality an independent school with its own peculiar problems and its own particular educational function, and its interests can be better conserved and its progress better assured through the control of an administrative board, such as it is now proposed to establish, which will be directly familiar with its aims and needs. The school of music is not a technical or strictly professional school. Its aim is to provide cultural courses in music for the academic student and advanced courses in theory and musical composition for students of graduate grade, so that its work falls naturally under other faculties of the university which have under their charge work of this character. The creation of a department of fine arts under the faculty of philosophy will amply care for the needs of music, and the creation of such a department will enable the faculty of philosophy to take under its charge the graduate work which is now offered and may hereafter be offered either in architecture or the fine arts. For the development of the latter, it is essential that more adequate provision shall be made for instruction in the history of art. This department of knowledge is so important and touches so intimately and vitally the work of other departments as to render the need for adequate provision most urgent. Could the University but secure the endowment of a chair in the history of the fine arts, it would be in a position to utilize its present resources to far greater advantage and to offer courses of instruction which might be made available to the students of the National Academy of Design as well as of the University.

University Chorus

The second concert of the University chorus was given at Carnegie Hall on Wednesday, April 17, under the direction of Professor Walter Henry Hall. About sixty players from the New York Philharmonic Society assisted the chorus of three hundred voices. Handel's "Acis and Galatea" formed the first part of the program, and a setting of Walt Whitman's "Mystic trumpeter" by the Irish composer, Hamilton Harty, received its first performance in this country. The works afforded an excellent contrast between classic and modern musical forms. The dramatic setting of the "Mystic trumpeter" naturally made a more immediate appeal than the pastoral character of Handel's serenata, and its brilliant score, in which both the choral and orchestral forces were heard to great advantage, gave evidence that in Hamilton Harty a new composer of distinction has appeared. This was the sixth concert given by the university chorus, and its work amply proved the wisdom of Professor Egbert in adding choral music to extension teaching.

Dean Keppel's Book on Columbia

Dean Keppel's book on Columbia, recently published by the Oxford Press, is for our alumni as well as for the general reader a most helpful account of what the University has been and is. Pretentions to original scholarship Dean Keppel modestly disclaims, and his scrupulous acknowledgements to earlier histories, to presidential reports and to miscellaneous records, inform us how rich in valuable archives our long career has been. Yet in certain respects this is the most original history of them all, and for certain purposes it can hardly be supplanted. Too often academic documents of this kind, intended for the public, read like a eulogy or an obituary, or like a program for an educational millennium. This book, by contrast, is written in common sense, in frankness, in discriminating affection. Never before have we seen in print so many of our shortcomings brought together for notice in one place, nor so much praise which carries with it a conviction that the writer is telling the truth. Earlier chronicles could hardly deal so thoroughly with the amazingly complicated structure of our University; but it must be added that even with Dean Keppel's unusual experience in its administration, few men could give so intelligent and adequate an account of the University as a whole. For our alumni, however, and for Columbia men of the future, the worth of the book will be in its portrait of life at Morningside today. Dean Keppel has written of the living institution as we know it at this moment—of our intellectual and social relations, our fellowship from end to end of the academic year. For another generation another picture will be needed, but this is our record. We find encouragement in it, and higher ideals.

Scholarships and Fellowships

At the last meeting of the University Council a resolution was adopted providing for changes in the present method of awarding University scholarships and fellowships. These changes are the result of action taken by the Association of American Universities in its effort to secure, as far as possible, uniform procedure in this matter on the part of the various universities comprised within the membership of the Association.

The most important change consists in the date of the award of University scholarships. Hitherto the final date of application for fellowships has been March first and the award has been made at the April meeting of the Council; the final date of application for scholarships at present is April first, and the award has not been made until the end of May. Hereafter the earlier dates will be observed both for applications and awards in the case of scholarships and fellowships alike.

Another change consists in the agreement to send as soon as possible after April first to all the members of the Association of American Universities a list of the appointments to graduate fellowships and scholarships, as they may have been tentatively agreed upon by the

University Council. The object of this action is to afford the various members of the Association an opportunity to compare the tentative lists and to prevent the "fellowship mongering" of which some of the universities have complained.

Foreign Correspondents of Teachers College

A new phase of the international spirit being fostered in the higher institutions of learning and conserved by many forces has developed in Teachers College with the appointment of "Foreign Correspondents." These Foreign Correspondents appear for the first time among the officers of the college in the announcements for 1914–1915. Since the fall of 1910, the college has sent abroad every year one or more advanced students of comparative education, interested in pursuing their investigations at first hand in the foreign field, and men have already gone to Denmark, England, and Germany. Grants for this purpose have been made available by the Foreign Research Fund of the College. Recipients of these grants leave for Europe about February first and spend the second semester in study abroad. Some time ago it became evident that this work could be much more effectively looked after if there was a special correspondent in each of the principal countries, to whom these students might be sent for counsel and direction, and from whom they might receive advice as to the most profitable way of attacking their particular problems, of finding sources of information, and of obtaining official sanction for prosecuting their researches. Furthermore, it is becoming more and more necessary for the college to keep in close contact with the progress of educational thought in foreign countries, with the changing conception of the education problems, and the projected legislation looking to the accomplishment of this end, as well as with the significant additions to educational literature, not only in the general field, but also on the teaching side of the various subjects of school instruction.

In order to meet these situations and others that may arise from time to time, five distinguished foreign representatives were invited to serve as foreign correspondents of Teachers College, the term of service to date from July 1, 1914. The names and addresses of these appointees are: England and Wales—A. E. Twentyman, Librarian of the Board of Education, Whitehall, London, S. W., England. Scotland—J. Clark, Clerk of the School Board, Glasgow, Scotland. France—Professor Jules Coulet, Director of the National Office of French

Universities and Schools, 96 Boulevard Raspail, Paris, France. Germany—Professor Dr. Goetze, Director of the Arndt Gymnasium, Berlin-Dahlem, Germany. Austria—Dr. Franz Skaberne, Kultus Ministerium, Minoritenplatz, 5, Vienna, Austria.

The appointment of these correspondents is but an extension of the same spirit that prompted the foundation of the exchange professorships between Columbia and Harvard on the one hand and various foreign countries on the other, that provided for an exchange of teachers between German and American secondary schools, and that established the exchange-teacher system in existence for a dozen years or more among England, France, and Germany. Such arrangements influence far beyond the individuals or the institutions concerned, and make for mutual understanding and an international comity whose ultimate benefits are bound to be far reaching.

President Goodnow

It is with mingled feelings that Professor Goodnow's associates contemplate his withdrawal from Columbia to become president of Johns Hopkins University. The honor conferred upon him is reflected, in some degree, upon Columbia, particularly upon the Schools of Law and of Political Science, of which he is an alumnus and in which he has been for thirty years an instructor. His selection gives new evidence of the national position which our University has attained. Long an increasingly prolific mother of professors, of late years Columbia is earning the title of mother of presidents. Such honors, however, may be dearly bought. In the present instance, Columbia loses an efficient teacher, a fosterer of research and a sagacious counselor. And if the duties customarily thrown upon the president of a modern American university—duties so numerous and so diverse that it is often questioned whether they can be fully discharged by any one man—leave President Goodnow no time for further labor in his special field, the loss to American scholarship, and particularly to American legal literature, to which his contributions have been so numerous and so valuable, will be even more serious than is the loss of his services to Columbia. Possibly, however, this regretable result may be avoided. In his work in politics and public law, Dr. Goodnow has had frequent occasion to study decentralization of administration and local self-government. In the discussion of our university problems, in which he has taken so active a part, he has more than once indicated his belief that American university government is unduly centralized. At Columbia, he has defended representative government and has advocated the fullest development of faculty autonomy that is compatible with efficient cooperation. If in his administration of Johns Hopkins University he is able to solve the problem of the devolution of administrative power and responsibility, not only will he render a great service to American higher education, but he may also achieve leisure for further study and writing.

Rev. Dr. Coe

As a matter of historic tradition certain clergymen holding representative positions in their respective denominations have always been elected to places in the Columbia board of trustees. It is an interesting fact that among these men, few of whom have been alumni, the standard of usefulness to the institution has been at least as high as that of the men chosen from among the graduates of the institution. The chairman of the committee which initiated the far reaching reorganization in 1857, for example, was the Rev. Dr. Knox, and the recent death of the Rev. Dr. Edward B. Coe brings to our attention an even more striking instance. Dr. Coe gave to the institution not only the benefit of a ripe experience in academic affairs, but industry, patience and insight of an exceptional kind. No son of Columbia could have given more whole-souled or more valuable service than did he, particularly during the years of his chairmanship of the committee on education.

Press Activities

The annual meeting of the Press for the transaction of general business and the election of officers was held in the office of the President of the University, who is *ex officio* also the President of the Press, on April 13th. The list of the Press publications to the end of the fiscal year contains no less than 172 titles, sixteen of which were added during the year. The sales of the year were 6,901 volumes, and 578 pamphlets in the series of Lectures on Science, Philosophy and Art. The total number of copies of publications sold from the beginning of the activity of the Press to the end of the year is 55,181 volumes and 10,865 lecture pamphlets. The London sales for the year show the gratifying increase over the preceding year of no less than 33.2 per cent.

The Secretary's report called attention to the greatly increased consideration given to Columbia University Press publications by the daily press throughout the country and by the literary and scientific journals at home and abroad. Long reviews of Press books not only appeared liberally in American journals and magazines, but to an extent beyond anything that has happened before they have been given generous and at times comprehensive notices in the journals of Europe. Since the end of the period covered by the report three additional volumes have appeared, and four more are in process of printing. A general catalogue, a pamphlet of twenty-eight pages, containing the titles of all books published by the Press, has been issued and is ready for distribution.

Professors Brander Matthews and William H. Carpenter and Mr. John B. Pine were elected trustees of the Press, to succeed themselves, for the term of three years. Professor La Rue Van Hook was elected a trustee to fill the unexpired term of William Dawson Johnston, late librarian of the University, resigned. Professor Carpenter was re-elected Secretary and Mr. Pine, Treasurer, for the fiscal year. The editorial board of the Columbia University Quarterly was re-elected, with the exception of William Dawson Johnston, resigned.

The latest issue of the Press is "The mechanics of law making," by Sir Courtenay Ilbert, Clerk of the House of Commons. The book is made up, with some excisions and additions, of the Carpentier lectures, delivered at this University in 1913. The author describes the development of bill drafting in England, with especial reference to the origin and office of the Parliamentary Counsel, who, as a government official, is charged with the drafting of all bills supported by the government. The author has held this position, as well as that of law member of the Governor-general's Council in India, and is consequently admirably qualified to speak on the subject from the standpoint of practical experience. The nine chapters of the book are: The legislature and the draftsman; reform of the English statute book; the comparative study of legislation; origin and functions of the Parliamentary Counsel's office in England; duties of a government draftsman; rules for the guidance of draftsmen; forms of legislation; codification; some characteristics of modern legislation. The volume will actively appeal to all who are interested, as many at this time are interested, in the much needed improvement of the form of legislation. The chapter on "rules for the guidance of draftsmen" should be particularly valuable to legislators to correct the all too common error in every legislative body throughout the land of the submission of important bills carelessly drawn.

There are in the press at this time and destined for immediate publication two volumes of the Columbia University Oriental Studies: "Sumerian records from Drehem," by William M. Nesbit; and "The evolution of modern Hebrew literature," by Abraham S. Waldstein; and two volumes in the Studies in English and Comparative Literature: "Gnomic poetry in Anglo-Saxon," by Blanche Colton Williams; and "The ballade," by Helen Louise Cohen.

* * *

President Butler's Letter to the Teachers College Celebration

Somewhat overshadowed by the approaching semi-centennial of the School of Mines, the twenty-fifth anniversary of the founding of Teachers College is nevertheless an event of much significance in the history of the University, for Teachers College was, as President Butler points out in this letter to Mr. Frank Rollins, president of the Teachers College Alumni Association, even more of an innovation than the School of Mines, and it has never lost in its own field the preëminence which priority gave it:

February 17, 1914.

Principal Frank Rollins
President of the Teachers College Alumni Association,
Bushwick High School
400 Irving Ave., Brooklyn.

My dear Dr. Rollins:

In reply to your very kind note of February 14, I wish once more to express my sincere regret that an exceedingly important meeting in Washington of the Executive Committee of the Trustees of the Carnegie Endowment for International Peace, at which meeting a long and difficult calendar of business must be disposed of, will make it impossible for me to join the alumni of Teachers College in celebrating the twenty-fifth anniversary of its founding.

There is no one to whom the anniversary can by any possibility mean so much as it does to me. The great and influential Teachers College of today is the fruit, ripened within a surprisingly short period of years, of a seed which I carried with me from Columbia College at graduation in 1882 and which was watered and fertilized by the genius and human sympathy of President Barnard, Professor Friedrich Paulsen of the University of Berlin, and Dr. William Torrey Harris, who so long led and inspired the educational thought of this country. With the exception of these three great men, no one to whom the idea was first presented seemed to understand in the least what it was all about. The notion that teachers could be trained in any other way than by ordinary graduation from school and college, or that there was a subject called education that might be studied by the methods of philosophy and of science, was as strange as an ichthyosaurus. The opportunity to realize the plan for a Teachers College that should be worthy of University membership came when, in 1886, I was invited to succeed the late General Alexander S. Webb in the Presidency of the Industrial Education Association. That Association had just held a striking exhibit for the purpose of acquainting the people of New York with what was meant by manual training and its advantages as an element in the work of the schools. Interest and enthusiasm had been aroused to such an extent that support was at hand for a forward and constructive step. I pointed out to the Managers of the Industrial Education Association that it would not be possible to advance the cause of manual training in the schools unless there were teachers competent to give instruction in it; that these teachers must be properly trained; and that if they were trained as teachers of manual training alone, they would be narrow and superficial specialists. The solution of the problem lay, as I pointed out, in establishing an institution for the training of teachers in which what was then called industrial education should be included and strongly emphasized. These views were not at once or universally accepted. Not a few earnest and sincere friends of the movement for industrial education thought them vague and unpractical. There were two persons, however, who felt their force sufficiently to assume the financial responsibility involved and to sign the lease of the large building which formerly stood at No. 9 University Place, and had been the original home of the Union Theological Seminary, for the purpose of the Industrial Education Association and its projected college for the training of teachers. These two persons were Miss Grace H. Dodge who has fortunately been able to witness, and most generously to promote, the quite unparalleled success of the idea for which she assumed responsibility a quarter of a century ago, and Mr. George W. Vanderbilt. Others soon joined with them, and the movement was put upon its feet, both educationally and financially.

For the years that we occupied the building, No. 9 University Place, it was a veritable Mecca for educational pilgrims from all parts of the United States and of the world. "No. 9," as it was affectionately called, became a symbol for the scientific study of education and for devotion to practical educational purposes. In due time Teachers College was received, as it was always intended that it should be, as an integral part of Columbia University. From that time its history and development are known wherever schools and colleges exist.

The beginnings of the Horace Mann School were of the simplest. To give our little class of elementary school children so pretentious a name was in itself almost an impertinence. Inasmuch, however, as the neighbors universally believed that the new school was a private undertaking of Dr. Horace Mann himself, we escaped criticism on this point. The class out of which the Horace Mann School has grown began with four members and two teachers. The first four children to present themselves were brought by their parents. They were two children of the late Richard Watson Gilder and two children of the late Dr. Cyrus Edson, then President of the Board of Health of the City of New York. The support and confidence of these two men was of itself a new source of strength. The two original teachers were Miss Ada L. Fairfield, of Iowa, and myself. It was not long before we added a woman with a positive genius for education, who is happily still to be found in our ranks, Miss Amy Schüssler.

You will see that my mind is dwelling rather upon beginnings than upon accomplishments. This is because right beginnings always seem to me to be the most important part of accomplishments. If sound ideas can be started and provided with a proper and sympathetic environment, they will go a long way toward taking care of themselves. It would not be possible for me, within any ordinary limits of time or space, to discuss or to dwell upon the later history of Teachers College. Dean Russell and the exceptionally brilliant band of scholars, both men and women, who constitute its Faculties of Education and of Practical Arts, are today the most potent single force in education to be found anywhere in the world. No government is doing as much as they are doing for the improvement of educational administration, for the fixing and justifying of educational standards, or for the inspiration of the work of instruction, whether in elementary school, secondary school, normal school, or vocational school. If all this has been accomplished in twenty-five years, what may we not expect when those who come after us assemble to look back on a century of the institution's history?

With heartiest greetings to the assembled alumni,

I am,
Sincerely yours,
NICHOLAS MURRAY BUTLER.

* * *

Working of the College Course

Before retiring from the office of Registrar, which he administered for five years with exceptional fidelity and success, Professor Hervey prepared a report on some of the workings of the present undergraduate curriculum, not in order to prove any particular proposition, but to aid the Faculty of the College in deciding whether any radical modifications in the present system of prescribed courses is desirable. Members of the Faculty had urged as an objection to the present system that students who were forced to take up prescribed studies dropped them as soon as the academic obligation was fulfilled before any real educational benefit was derived from the subject. It was urged also that under the present system there was a lack of concentration of the student's effort. In order to ascertain the force of these objections, Professor Hervey took the 172 members of the senior class (1913) as the basis for his inquiry. His statistical results are in a measure complicated by the fact that two-thirds of the students who were graduated from Columbia College in

June last had either entered with advanced standing or exercised some one of the professional options in their junior and senior years. A few students had done both; one-third of the members of the class had attended at least one Summer Session. It is because of these facts that the most significant part of Professor Hervey's report is that which deals with the record of the 62 students who had offered all their work for the College degree in non-professional subjects in Columbia College. Professor Hervey found that the average number of subjects taken by this group of students during their College residence was 12.2, and as 124 points are required for graduation, the average number of points made in each subject was a trifle less than 10. In three-fourths of the sequences of courses in a given subject chosen by students, the minimum requirement as to such a sequence was exceeded. Indeed, although but two sequences are required, each one of the 62 students actually took a third unrequired sequence of 10 or more points. Every one of these students devoted at least one-third of his College work to three subjects, and two-thirds of them did more than half their work in three subjects. Only one student in twenty had followed a program in which three-fourths of the work done was in unrelated courses. This would appear to be an effective answer to the charge of undue dispersion of interest and of energy.

Each case in which a student had followed either a prescribed or an elective course by another course in the same subject during the following year has been carefully analyzed by Professor Hervey. Contrary to the general impression, he found but two cases among the prescribed studies in which more than half the men taking it had not followed the prescribed course with an elective course in the same field. In one of the exceptions, that of mathematics, the same statement holds good of the students who offered the advanced requirement in mathematics at entrance.

Elective work was continued into the second year in a large percentage of cases, the highest being: Philosophy, 57 per cent.; Greek, 55 per cent.; English, 50 per cent.; German, 47 per cent.; and Chemistry, 42 per cent. In general, it may be said that these percentages stand in pretty close relation to the wealth of the offering which the departments named make to College students. The following figures in regard to the elective studies taken by undergraduates are so interesting that they are given in full:

COLUMBIA COLLEGE CLASS OF 1913

SUMMARY OF ELECTIVE ATTENDANCE

(*Figures in parenthesis indicate relative order of Departments*)

Department	No. of Students	Points Elected	Points per Student	Terms per Student
Anthropology	23 (20)	98 (22)	4.3 (23)	1.4 (23)
Astronomy	29 (15)	165 (19)	5.0 (20)	1.6 (20)
Botany	26 (18)	260 (14)	10. (5)	2.4 (5)
Chemistry	68 (8)	796 (4)	11.7 (3)	2.7 (3)
Economics	98 (3)	727 (5)	7.4 (13)	2.4 (13)
Education	28 (16)	141 (20)	5. (21)	2.1 (21)
English	130 (1)	1132 (1)	8.7 (9)	3.4 (9)
French	84 (7)	698 (7)	8.3 (10)	2.7 (10)
Geology	28 (17)	188 (18)	6.7 (14)	2.3 (14)
German	85 (6)	902 (2)	10.6 (4)	3.2 (4)
Greek	20 (22)	305 (12)	15.2 (1)	3.3 (1)
History	90 (5)	860 (3)	9.5 (6)	2.7 (6)
Italian	15 (23)	85 (23)	5.6 (18)	1.9 (18)
Latin	36 (13)	271 (13)	7.5 (12)	2.9 (12)
Mathematics	42 (11)	563 (9)	13.4 (2)	3.3 (2)
Music	43 (10)	212 (6)	5. (22)	1.8 (22)
Philosophy	50 (9)	436 (10)	8.7 (9)	2. (9)
Physics	36 (14)	327 (11)	9. (7)	2.1 (7)
Politics and Public Law	94 (4)	565 (8)	6. (16)	1.9 (16)
Psychology	110 (2)	724 (6)	6.6 (15)	2.1 (15)
Religion	39 (12)	232 (15)	6.6 (17)	1.8 (17)
Spanish	22 (21)	124 (21)	5.6 (19)	1.9 (19)
Sociology	26(19)	206(17)	8. (11)	2.5(11)
Zoology	26 (19)	206 (17)	8. (11)	2.5 (11)

The conclusions which Professor Hervey draws from his elaborate and very careful study are these:

1. That the proportion of College students continuing a subject of study beyond a prescribed course in it is large enough to disprove the statement that a prescribed course of itself makes a subject distasteful and discourages its further pursuit.

2. That, in view of the high proportion of students taking professional options in their junior and senior years, and in view of the large number of admissions to advanced standing, the proportion of students who take elective courses in a given subject for more than two terms is high enough to disprove the statement that there is in general tendency toward a dispersion of interest and of energy.

3. That the student as a rule chooses wisely as to the subjects upon which he concentrates his attention.

4. That the typical Columbia undergraduate divides his time by giv-

ing one-half of it to three subjects of his major interest, one-fourth of it to three subjects of lesser interest, and the remaining fourth to six separate subjects.

This study by Professor Hervey will be accepted within the University as authoritative, and his conclusions cannot be lightly set aside. They point to the fact that the present College curriculum is working pretty effectively and is accomplishing in large part the aim in training and in discipline for which it is designed.

* * *

Publication Exhibit

From February 12 to 28, an exhibition of publications by alumni, officers, and students of the University was held in the general library. Among the publications shown were fifty-nine dissertations, ten books other than dissertations issued by the University Press, and forty-six books issued by other publishers. As no periodical articles were included and as the list of books exhibited was limited strictly to work published in 1913, the total of one hundred and fifteen titles exhibited was a very creditable showing, although it represented probably less than half of the actual output. The Library is making systematic efforts now to keep track of new publications and will gladly welcome all alumni cooperation to that end.

Following the precedent of 1912, when the Johnson MSS. were exhibited, and of 1913, when the fine Alexander Hamilton collection belonging to Dr. Allen McLane Hamilton, '70M, was displayed, there was also an exhibition of early Columbiana, including one case of material relating to Samuel Johnson, the first president of Kings College, and another relating to Myles Cooper, the second president. The occasion for the latter exhibit was Mr. Robert Van Rensselaer Stuyvesant's recent gift to the University Library of "A new and general biographical dictionary" in eleven volumes, which had once been the property of Myles Cooper and had been given by President Cooper to Mr. Stuyvesant's great grand-father, Petrus Stuyvesant, a grandson of Governor Peter Stuyvesant. Besides the Biographical Dictionary presented Mr. Stuyvesant, the exhibit included copies of both President Cooper's "Friendly address" and Charles Lee's answer to it, the warning to President Cooper signed "Three millions," as reprinted in the *American Archives,* his poem on his escape, several volumes of his own writings, and books from his library.

Meunier and Borglum Exhibitions

The exhibition of the works of Constantin Meunier, which opened at the Avery Library on January 25 closed on February 15. During this period 26,972 people attended, an average of 1,284 per day. The library was open every day from 9 a. m. to 11 p. m. and from 2 to 6 p. m. on Sundays. The exhibition was well supported by the press but was not exploited in any unusual manner, and the large attendance was undoubtedly caused by genuine appreciation of the work of the great Belgian sculptor.

On March 2 there was opened in the Avery Library an exhibition of the works of the American sculptor Gutzon Borglum. The exhibition closed on April 25. Mr. Borglum was born in Idaho, the son of Dr. James de la Muthe Borglum, a physician of note in the far west. He was educated at St. Mary's College in Kansas, and trained at the Académie Julien and the École des Beaux-Arts in Paris. He has practised in New York since 1902, and is known as a sculptor of great breadth and power and of extraordinary technical facility.

After the passing of the Meunier exhibition it seemed appropriate that the Avery Library should place an exhibition of the work of some living American, which might with interest be compared with the production of the great Belgian. Mr. Borglum's name suggested itself naturally. He is the leading representative in this country of the modern school of sculpture to which Meunier belonged. It is characteristic of the modern metropolitan university that it should welcome cordially a keen, clever and original personality like Borglum, who has not followed cherished conventions closely.

Mr. Borglum gave two lectures in the Avery Library in connection with the exhibition, one on March 3 before the students of the architectural department, and another on March 27 before the Institute of Arts and Sciences. Both were well attended and keenly appreciated. The attendance was excellent throughout the exhibition.

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Pageant Exhibition

In addition to the above there was on view from February 21 to March 1 in the Avery Library an exhibition of pageant material: pageant dramas, posters, folders, music, models and photographs contributed by various pageant artists who were present at the recent conference on pageantry at the University. Much the larger part of the exhibition was from the pageant library of William Chauncey Langdon, master of the pageants of Thetford and St. Johnsbury, Vermont, Meriden, New Hampshire, and Darien, Connecticut. Mr. Langdon owns one of the largest collections of pageantry material in existence. The exhibition was, therefore, not only the first of its kind but also the most remarkably representative, twenty-six of the thirty English pageants, for instance, being represented from Mr. Langdon's library.

* * *

Wireless Laboratory

There has recently been installed in the basement of Philosophy a very well equipped laboratory for the purpose of offering laboratory instruction in radio-telegraphy. The installation was put in primarily for the benefit of the naval officers who have been taking their graduate work at Columbia this year, but it is expected that the course in radio-telegraphy and telephony will be offered to any properly qualified student after this year.

The equipment comprises a Marconi 2 K.W. synchronous spark transmitting set, which is furnished also with a quenched spark gap and a non-synchronous gap. The antenna is anchored upon two 65 foot steel poles, erected for the purpose upon the roofs of Schermerhorn and Havemeyer. The transmitting set has a range of approximately one thousand miles. Besides the Marconi spark set for sending purposes there is a General Electric 200,000 cycle alternator, by means of which experiments in radio-telephony may be carried out.

The receiving apparatus includes the various devices which are in commercial use, several very sensitive galvanometers, telephone receivers, etc. In addition the very best types of Telefunken wave-meters and Marconi wave-meters have been obtained, by which the wave lengths and decrements of the various stations in the neighborhood of New York can be measured.

The laboratory is in charge of Professor J. H. Morecroft, who is assisted by Mr. E. H. Armstrong, Columbia E.E. '13.

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School of Philanthropy

Mr. Frank D. Watson, who has been for three years a member of the staff of the School of Philanthropy and has given a course for which credit is given at the University, has resigned to accept a position as associate professor of social work in Haverford College.

Arrangements have been made for two new courses in the School of Philanthropy. One of these will be given by Miss Mary Van Kleeck, director of the department of women's work in the Russell Sage Foundation, who will give a course on "Industrial conditions," supplementing a course by Professor Lindsay on "Workers and the law." The other will be given to second year students in the School of Philanthropy by Professor Frederick A. Cleveland, director of the Bureau of Municipal Research, on "Administration of social agencies," including a study of budgets, financial accounts, statistics, annual reports and appeals, and other data from which the administrative efficiency of the municipal department, the charitable institution, or other agency of social welfare may be determined.

The announcement of the School of Philanthropy for 1914–15 describes the full two-year course now offered besides many special courses, a series of summer institutes, and a consultation service.

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The Visiting Professor to Austria

Professor George S. Fullerton of this University, as first visiting American professor to Austria completed his work at the University of Vienna at the end of the winter semester in February. His second course of lectures on philosophy, three times a week, was attended by about 200 students. The course on the American universities drew an audience of 400.

The last lecture delivered by Professor Fullerton was made the occasion for a friendly demonstration, which showed on the part of the government, the faculty and the students a warm interest both in the exchange professorship and in the country from which the visiting professor came. The students had decorated the speaker's stand with festoons of laurel and with ribbons of the Vienna colors, red and white. Three representatives of the Ministry of Education were present and a number of professors. At the close of the lecture, the Dean of the Philosophical Faculty made an address of appreciation and ended by announcing that at the request of the faculty and the ministry, the Austrian Emperor the day before had signed the necessary papers making Professor Fullerton an honorary professor of the University of Vienna and expressing the hope that he should in the future, whenever it were possible, make use of his right to announce and to hold lectures at the University. This action was undoubtedly intended as an extraordinary mark of friendliness. Heretofore, no faculty of the University, except the Faculty of Law, has had an honorary professor. That faculty has five, all of whom, however, have been prominent in the service of the State, three of them as Ministers of the Crown.

Subsequently, Professor Fullerton on the official request of the Rector of the University delivered a single lecture at Cracow, the old capital of Poland, in the University aula, after which a general reception was held and finally a university dinner at which the Rector presided. Directly thereafter two lectures were delivered on successive days at the University of Lemberg, before the Polish Philosophical Society, which were attended by some 600 people. Afterward, a luncheon was given by the Senate of the University at which many members of the different university faculties were present. At Lemberg, where visitors from America appear to be something of a rarity, the lectures were widely advertised and the public was informed of the unusual event by large yellow posters displayed throughout the city.

The American visiting professor in the new interchange with Austria has been everywhere received, from the day of his arrival in Vienna to this last function in Lemberg, not only with friendly cordiality as a notable foreign scholar, but with enthusiasm as the representative of a new order that has appealed strongly to the Austrian people, both within the university to which he was especially accredited and to the larger public outside. The daily journals of Vienna and of all Austria have given frequent and comprehensive reports of the lectures and the addresses that Professor Fullerton was constantly called upon to deliver, and an active interest has been evidenced in the undertaking in all its phases that has definitely endorsed it and assures its permanent value.

* * *

Professor Ralph W. Gifford

When the School of Journalism, which aims in its specialized curriculum to give the gist of a great many subjects taught at greater length in other schools of the University, needed a man to present in a single three-hour course the law that an efficient newspaperman ought to have, Professor Ralph W. Gifford, of the Yale Law School, was selected. Professor Gifford, who has been regarded as one of the strongest men in his faculty at New Haven, has now been appointed to a chair in the School of Law.

Born at West Dedham, Massachusetts, in 1867, Professor Gifford received his education in the Cambridge Latin School, Harvard, and the Harvard Law School. He was a Harvard Law Review editor, and took his degree *cum laude* after having received an A.B. *magna cum laude*. In 1901 he entered upon the practice of the law in New York City and continued in practice until appointed professor of

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RALPH W. GIFFORD

M.A., LL.D.

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THEODOR NIEMEYER

Kaiser Wilhelm Professor

1914–15

See p. 301

CHARLES F. HOFFMAN

Trustee

See p. 303

JAMES PECH

Mus. Doc., Ph.D., LL.D.

law in Fordham University in 1906. Two years later he was appointed pro-dean of the law school and directed its policy during its formative period. While at Fordham he did some teaching in the Columbia Law School, and he has given courses in law in the Summer Session. In 1912, Professor Gifford accepted appointment in the Yale Law School and in the same year received the honorary degrees of A.M. from Yale and LL.D. from Fordham.

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The New Trustee

Charles Frederick Hoffman, son of the Rev. Charles Frederick Hoffman, D.D., of New York, and Eleanor Louisa Vail of New Brunswick, New Jersey, was born at Morristown, N. J., and brought up at Garrison-on-Hudson, N. Y., where his father was Rector of St. Philips in the Highlands. At the age of seventeen, having spent five years at St. John's School, Sing Sing, he went to New York, his father having become Rector of All Angels' Church, New York. He resided part of the time with his grandfather, Samuel Verplanck Hoffman, at 210 Fifth Avenue, and entered Columbia College in 1874, graduating with honors and receiving the degree of A.B. In 1880 he engaged in the real estate business, retiring in 1898. Later he became president of the estate of Charles Frederick Hoffman, Inc., and director in various other real estate corporations.

Mr. Hoffman is a trustee of the Greenwich Savings Bank, a director in the Commonwealth Insurance Co. and United States Trust Co., a member of the Chamber of Commerce, trustee and treasurer of the Cathedral Church of St. John the Divine, trustee and vice-president of St. Luke's Home for Aged Women, vice-president of the Cathedral League and trustee of the Hospital and House of Rest for Consumptives, of the House of the Holy Comforter, of the Protestant Episcopal Society for Promoting Religion and Learning, and of the New York Protestant Episcopal Public School. For many years he was a trustee of the New York Theological Seminary, of which his uncle was dean. He is a warden of all Angles' Church and vestryman of Old Trinity Church, Newport, governor of the Newport Reading Room, and governor and treasurer of the Union Club, N. Y. Mr. Hoffman is a member of the Tuxedo Club, Metropolitan Club, Sleepy Hollow Country Club, Jekyl Island Club, St. Nicholas Society, Holland Society, Society of Colonial Wars, Metropolitan Museum of Art, Geographical Society, and New York Historical Society.

Professor of Economics

The Trustees at the March meeting appointed Wesley C. Mitchell Ph.D., Professor of Economics. Professor Mitchell was born at Rushville, Illinois, August 5, 1874. He received his education in the public schools of Decatur, Illinois, and at the universities of Chicago, Halle-Wittenberg, and Vienna. The degree of Bachelor of Arts was awarded him by the University of Chicago, 1896; and Doctor of Philosophy in 1899. From 1899–1900, he was in the Census Office in Washington. He was instructor in the University of Chicago from 1900–1902; assistant professor of political economy at the University of California from 1902–1908; associate professor, 1908–09; and professor, 1909–1912. He was lecturer at Harvard University, 1908–09, and Columbia University, 1913–14. Professor Mitchell is the author of "A history of the greenbacks," Chicago, 1902; "Gold, prices, and wages under the greenback standard," Berkeley, Cal., 1908; "Business cycles," Berkeley, 1913.

* * *

Kaiser Wilhelm Professor 1914-15

Theodor Niemeyer, Kaiser Wilhelm Professor for 1914–15, was born in Boll, Württemberg, in 1857. He studied in turn at the universities of Leipzig, Heidelberg and Berlin. From 1883–1885, he was an assistant in the Prussian Ministry of Justice; from 1885–1888, district judge at Unna, in Westphalia. In 1888, he received the degree of doctor of laws at the University of Halle, where that same year he became a privat docent in Roman law and private international law. In 1893, he was called as assistant professor to the University of Kiel and was made full professor the succeeding year. In 1895, in addition to his professorship at the University, he was teacher of international law at the Marine Academy in Kiel. In 1907, he was rector of the University. In connection with his work at the Marine Academy and the University he traveled extensively, and among other important tours took two voyages on board German warships in order to observe at first hand the conditions of ocean traffic and the conduct of foreign consulates and embassies.

Professor Niemeyer is the author of many books on private and maritime international law and of numerous articles in scientific journals on international law and politics. He is, further, the director of the seminar for international law in the University of Kiel and editor-in-chief of the *Zeitschrift für Internationales Recht* and the *Jahrbuch des Völkerrechts*. He is vice-president of the International Law Association, and of the Deutsche Vereinigung für Internationales Recht; associate of the Institut de Droit International; and member of the French Societé de Legislation Comparée.

Professor Niemeyer is a man of wide experience who has attained distinction in his particular field in a number of different directions. As Kaiser Wilhelm Professor in this University, he will be a notable addition to the force of instruction in subjects that are of continually increasing importance to the students of the University and to the nation.

* * *

James Pech Library

James Pech, Mus. Doc., Ph.D., LL.D., a well-known and distinguished musician, a musical director and conductor of orchestral and vocal forces, has recently donated to the University his large and interesting library containing some two thousand or more volumes of standard and classical works. The library contains oratorios, cantatas, odes, masses, motetts, operatic full scores of ancient and modern composers, from the time of Palestrina, Orlando di Lasso, Vittoria, Carissimi, Pergolesi, Bach, Gluck, Handel, Haydn, Mozart and Beethoven down to Cherubini, Schumann, Mendelssohn, Schubert and others of that school. It also contains many volumes of cathedral music of the diatonic school as performed in the cathedrals of England, Wales, Ireland and in the universities and colleges of Oxford, Cambridge and Dublin, from the time of the Reformation by Tallis, Tye, Byrd, Purcell, Gibbons, Boyce, Blow, Green, down to Walmisley, Ouseley, Stainer and many others. There are also many superb compositions written for the Roman Catholic Church by Haydn, Mozart, Beethoven, Cherubini, Hummel, and others who have composed requiems, masses, motetts, etc., of imperishable beauty and grandeur, as some of the readers of the QUARTERLY may remember who heard many of these masterpieces given under the direction of Dr. Pech by the celebrated Church Music Association in the sixties and seventies. The collection of organ and pianoforte music contained in the library is very large, consisting of works for the clavier, harpischord, and piano, from the time of Couperin, Rameau, Corelli, D. Scarlatti Rousseau, J. S. Bach, C. Ph. Bach, Johann Christian Bach, Haydn, Mozart, Clementi Cramer, Dussek, Steibelt, Beethoven, Hummel, Moschelles, Liszt, Thalberg, Czerny, Henselt, Chopin, Mendelssohn, Schumann, Schubert, Sterndale Bennett and others. There are also many educational and standard works on the history, philosophy, theory and practice of music.

In addition to the above, Dr. Pech has donated several hundred volumes in the field of belles lettres, as well as essays and commentaries by the most eminent writers on the fine arts generally, among which are many very old as well as new volumes of dramatic and musical art.

It is interesting to know that Dr. James Pech has been a resident of this country for nearly fifty years. He is a son of a major in the British army, who was wounded and died in India, and of the Hon. Mary Agnes Manners-Sutton. On his father's side his grandfather was one of the equerries in waiting on King George IV. His great grandfather on his mother's side was an Archbishop of Canterbury. He was reared in the cathedral city of Rochester, England, in which cathedral he was a chorister boy. When his voice broke, he was placed in the Royal Academy of Music, London, under the instruction of Professors Charles Lucas and John Goss, organist and master of the choristers of St. Paul's Cathedral, London, for harmony and counterpoint, and for the pianoforte under Professors Frederic Jewson and William Sterndale Bennett. On leaving the Royal Academy of Music, he became an undergraduate of New College, Oxford. After graduating in arts and music he traveled on the continent of Europe, where he continued his studies in counterpoint under Friederich Schneider, one of the court organists at Dresden, Germany, and for the pianoforte under Czerny, Henselt and Doehler. On his return to England he became, with Sir Julius Benedict, conductor of the Royal English Opera at the Theatre Royal, Drury Lane, London, then under the patronage of Queen Victoria and her Consort, Prince Albert. He was also, in conjunction with Sir Julius Benedict, a conductor of the London Orchestral Association and the Peoples' Philharmonic Concerts. At this time he was made pianist and composer to the Right Hon. the Countess of Darnley. On arriving in this country in 1864 he became musical director and conductor of the celebrated Church Music Association and the New York Harmonic Society; and in 1870 he conducted the oratorios performed at the Beethoven centennial with a chorus of three thousand and a grand orchestra of three hundred and seventy-five instrumentalists. He was also for some time operatic and dramatic conductor of music in the old Academy of Music in this city.

In recent years Dr. Pech has lived much in retirement, except when engaged in giving lectures in some of the colleges and universities in this country and Canada on æsthetics and the history, theory and practice of music. In music he has composed rondos, fantasias and nocturnes for the pianoforte, three preludes and fugues for the organ; many Latin motetts and six anthems in five, six and eight real parts with orchestral accompaniment.

In the field of general literature he has written several works, among which may be mentioned a volume entitled "Ancient classics in English verse"; a book of poetry, "Lays of love and friendship"; an essay on "The influence of liberty on taste in the ages of Augustus and Louis XIV"; "An analytical and critical synopsis of pianoforte literature," published by the Literary Club of Montreal, and a brochure on "The Beethoven centennial of 1870." His analytical and critical synopses contained in the concert programs issued for each concert by the Church Music Association during the period of its existence were held in high estimation.

In recognition of his scholarship and attainment in the literary world Manhattan College conferred on him the degree of Ph.D. in 1892 and Fordham University that of LL.D. in 1901.

* * *

Religious Activities

With the opening of the fall term, those actively engaged in religious work at Columbia came together and decided upon a "campaign." They formulated as their purpose "to unite the various religious interests at work among the students of the city; to deepen the religious life of students; to acquaint students with the progress of Christianity throughout the world."

Through the very skilful organization work of Mr. Harry E. Edmonds, intercollegiate secretary of the New York City Y. M. C. A., and of a special committee composed of student and faculty members, a series of meetings was arranged for the first week in March. Dr. John R. Mott, secretary of the World's Student Christian Federation, was the principal speaker. The attendance and the attention were remarkable. At the first meeting in Carnegie Hall, with former President Taft presiding, over twenty-five hundred students were present; at the subsequent meetings, held in the Columbia gymnasium and the Horace Mann auditorium, the capacity of each hall was taxed. Dr. Mott's forceful personality, combined with his world-wide knowledge of student life, and his skill in marshaling facts without emotionalism, produced an immediate response.

The difficulty of assembling large numbers of students in New York has long been recognized; and the indifference of students to religion has often been charged; nevertheless, it was the impression of Dr. Mott and of many others that student interest is deep-seated, eager for truth, and ready to be directed into forms of high service.

The following ediorial comment taken from *Spectator* well summarizes the student impression: "With his address in the gymnasium last night, Mr. John R. Mott brought to a close the most remarkable student religious campaign ever held at this University. What the exact results of the campaign will be, it is still too early to know; how much good it accomplished can never be definitely known. But of the fact that it accomplished good, and even great good, there can be no question whatsoever. The University has heard a remarkable man, and is the better for it."

A forum of four discussions on the subject "Religion and law" was conducted by Professor Charles Thaddeus Terry of the Law School from February 18 to March 1.

Upon invitation of the Churchmen's Association, Rev. Harvey Officer, O.H.C., visited the University March 30 to April 3, inclusive; each day at 4:15 a half hour address was given on "Prayer and worship."

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Columbia Men in the Professions

The interest of college alumni generally will be aroused by a bulletin of the United States Bureau of Education which discusses the Professional Distribution of College and University Graduates, a statistical study by Bailey B. Burritt. To those who have known Columbia and her history Mr. Burritt's array of statistics will have but little novelty, but to the many graduates of this historic institution whose knowledge of its past is not profound this section at least of his careful investigations may be recommended.

The report gives in some detail the history of the various professions in their relations to the alumni of ten representative institutions. This is extended by comparing the development of these professions in 25 such institutions and then combining the material and adding thereto so that statistical tables and information are available for 37 representative colleges and universities. The method of classification was to group as far as possible all the graduates of the institutions selected in five-year periods under their respective professions. These were divided as follows: the ministry, law, medicine, education, commercial pursuits, public service, engineering, agriculture, literature and journalism, and unclassified.

TEN REPRESENTATIVE INSTITUTIONS

For his detailed history of professions in ten representative colleges and universities Mr. Burritt has selected Harvard, Yale, Brown, Columbia, Dartmouth, Oberlin, University of Michigan, University of Pennsylvania, Wesleyan, University of Wisconsin.

For each of the ten representative institutions an interesting history is presented, and tendencies especially marked and unique are discussed by themselves and comparatively. Thus at Harvard the profession of teaching today is attracting nearly twice as large a percentage of the graduates as at Yale. On the other hand the great strides made within the last fifty or sixty years in the industrial world are reflected more conspicuously at Yale than at Harvard. The group of graduates embracing commercial careers at the former has increased steadily from about one-tenth of the graduates in 1840 to 42.9 per cent. at the present time, the rapid rise being interrupted but twice; namely, at the five-year periods which included the panic years of 1873 and 1893. Nevertheless these interruptions were but temporary, and an even more conspicuous rise followed each of them.

COLUMBIA COLLEGE GRADUATES

Mr. Burritt very truthfully observes, with respect to the record of Columbia College and Columbia University, that the history of the early graduates of Columbia College has not yet been traced with the same thoroughness and care as at Harvard and Yale, so that for the first half century of the institution's existence it is impossible to obtain definite information as to the vocations of many of the graduates.

IN DIVINITY

Despite the interest of the Church of England in its establishment, Columbia was never so directly under denominational influence as were Harvard and Yale. For this reason the profession of the ministry from the beginning has never taken a large percentage, so that the remarkable falling percentage from the church is not as evident at Columbia as at other institutions; and as regards absolute numbers, there has not been any decline, though the increase has been far less proportionally than the increase in the total number of graduates.

IN LAW

The dominant profession with graduates of Columbia College has been the law. Except in the last five-year period before the Revolutionary War, when the graduates entering the ministry predominated, and in the period 1881–1885 when those taking up commercial pursuits were greater numerically, the number of lawyers has led all the other professions. The first period of 18 years showed 13 lawyers. In the next 25-year period there were 61, and this was more than doubled in the following 25 years. During the second quarter of the nineteenth century there were 196 lawyers, this number being increased to 255 and 399, respectively, for the remaining quarters of the century.

IN MEDICINE

The profession of medicine has always attracted a certain proportion of Columbia College graduates since the re-establishment of a medical course after the Revolutionary War. The number has averaged about 10 per cent., reaching a minimum of 5 per cent. for the period of 1836–1840 and rising during the next fifteen years to a maximum, which was reached in the period of 1851–1855, when 14.7 per cent. represented the quota of graduates who adopted medicine for their life work. Between 1860 and 1890 the profession averaged about 7.5 per cent. and after 1890 about 10 per cent.

IN TEACHING

Columbia's metropolitan location and its clientele are shown by the fact that during its early history it graduated few men who made educational work their profession. Though this was a time when many of the graduates of the older colleges became teachers, the group at Columbia never was large until the third quarter of the nineteenth century. Previous to 1850 the profession did not average one man per class; between 1850 and 1875 it averaged but little more than one man, while during the next 25 years, 1876 to 1900, it averaged more than five men per class.

IN MECHANICAL PURSUITS

The study of the statistics of the graduates who have gone into mercantile pursuits is one that can be undertaken with considerable profit, for the growth of commerce and industry as centered in the metropolis should have its effect. Naturally the general trend of the curve is upward, but as in other institutions the fluctuations correspond more or less closely to the eras of prosperity and panic. Then there is also the consideration that business men are slower than others to settle permanently in their professions, so that the percentage curve does not show any rising tendency since the panic of 1893. In absolute numbers, however, there has been a marked increase as shown in the following table of class averages:

1775–1800	1
1800–1825	2½
1825–1850	4
1850–1875	6
1875–1900	11

The Period of the Early Eighties

While this curve has had its fluctuations there is one fact that appears to be of interest. Its maximum was reached in the period from 1881–1885, at a time when the number of students was large and when there was a well organized faculty of eminent men specially devoted to the instruction of undergraduates and to their problems. At the same time student spirit and organization had reached perhaps a high-water mark for Columbia and there was a degree of undergraduate enthusiasm and efficiency that perhaps has never been equalled. Now we have seen at Yale, where this spirit has been claimed to be most highly developed, that there has been a large growth in the percentage of men entering commercial pursuits, and it might be suggested whether or not the presence of a well-organized faculty and enthusiastic student body in the days of the "Early Eighties" was not as effective in developing men of business as in bringing forth the illustrious scholars who are so striking an ornament of this period.

In Engineering

But the statistics inform us that we are living in the twentieth century, and we have only to look at the steadily rising curve of the engineering profession to realize that those who control the material resources of the universe are coming into their own, and that a profession not recognized before 1820 was taking 6.4 per cent. of the graduates by 1901–1905 and is constantly gaining. Indeed, Columbia has been and is contributing to the engineering professions a group of men not only professionally trained but possessing in addition the liberal culture and acquaintance with the humanities derived from a college course.

In Agriculture and Literature

Agriculture has never appealed to Columbia College graduates, and literature and journalism also have failed to attract large numbers.

Since 1830 in every five-year period there has been a small group, varying from four-tenths of 1 per cent. to 3 per cent., who have devoted themselves to letters.

CONCLUSIONS FOR THE COLLEGE

In concluding his section on Columbia College, Mr. Burritt makes this summary:

The following prominent facts are brought to light by this study of the academic department. With one slight exception, law has been the dominant profession since the Revolutionary War. Business and the ministry contended for second place until the middle of the past century, but since that time commercial pursuits have easily led. For the last quarter of a century, teaching occupied third, medicine fourth, ministry fifth, and engineering last place with the exception of the last five-year period when it exceeded ministry.

A consideration of the total number of graduates in the academic department shows that law, in absolute numbers, is easily the dominant profession. Mercantile pursuits hold second place, ministry third, medicine fourth, education fifth, and engineering sixth. The figures are as follows:

Law	1,211
Commercial pursuits	727
Ministry	417
Medicine	382
Education	268
Engineering	116
Literature and journalism	58
Agriculture	41
Public service	14

THE UNIVERSITY

When a similar study is made of the comparative numbers of the various professions filled by graduates of the whole University as distinct from the College proper, it is found that the statistics are of value as supplying additional information for but little more than a half century, for with the exceptions of some 143 graduates in medicine between 1769 and 1812 there were no graduates outside of the academic department until 1860. With the reincorporation of the medical school into the University, although the connection was little more than nominal for 30 years, and with the establishment of the law school, the beginnings of the real university were made

Medicine became the dominant profession of the University and maintained its position except between 1870 and 1880.

The relative rank of professions for the whole university, considering absolute numbers, is given in the following table:

Medicine	5,698
Law	5,367
Engineering	1,635
Commercial pursuits	1,043
Education	450
Ministry	442
Journalism and literature	145
Agriculture	69
Public service	20

* * *

Good Roads and Prison Labor

The proceedings of the Academy of Political Science for January present an interesting combination of two new phases of the activities at the University, the National Committee on Prison Labor and the Department of Highway Engineering having combined in this issue to set forth the scientific methods connected with the employment of prisoners on roads and public works. Mr. Charles Henry Davis, who has been instrumental in securing the establishment of the graduate highway department, contributes the foreword while Dr. E. Stagg Whitin of the department of social legislation, who is also chairman of the executive committee of the National Committee on Prison Labor, contributes the recommendation for the reconstruction of the prison system of Wisconsin made to the Board of Public Affairs of that state, and Sydney Wilmot of the highway department adds a study of "The use of convict labor for highway construction in the north."

The solution of Wisconsin's prison problem lies, according to Dr. Whitin, in the selection of a site "upon the state land in the northern part of the state, abutting upon a railroad, where a permanent camp could be constructed, equipped with machines for crushing rock, and with a pulp factory for the preparation of wood products. The camp once constructed should be connected by roads with the state timber lands and the state stump lands. All prisoners who can be placed on their honor should be sent to this camp, where a second selection of those still more trustworthy should be made. This latter group should be used to clear the stump lands, and to do reforestation work in the state forest lands. The stumps and the wood cleared from the lands should be brought down to the pulp factory, and the crushed stone taken back for the further extension of the roads. The pulp and the boards from the woodcamp should be shipped to Waupun, where there should be established a school-desk and state furniture factory, a paper mill, and a printing shop. In the printing shop life prisoners should be used. The products of this plant should be delivered to the several departments of the state; the warden of the prison should place a bid for the state printing, except the legislative, and should secure the same according to the rules of the constitution. Waste paper gathered from the departments of state should be returned to the prison and used again as pulp. The payment of a wage to the convict should be authorized by law on the basis of his productivity, which should be increased by the most scientific medical care, the correction of his physical ailments, together with such regulations for education in prison and road-camp as shall prove an incentive to better living and better work. The actual expenses of his maintenance and guarding should be charged against him and deducted from the allowance which has been credited to him on the basis of the free man's work. By law, the balance should be the legal right of his wife, children and other dependents.”

Convict road work is proved by Mr. Wilmot, after careful study of its development in many states, to have met with uniform success when given fair trial. His conclusion is that with our present light upon the subject the employment of convicts upon the roads is the most reasonable and justifiable solution of many of the road and prison problems.

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“Some Other Things”

Charles Halsted Mapes, ’85 A.B., ’89 Ph.B., whose volume of college yarns and addresses was recently published by the Putnams under the title of The man who one day a year would go eelin’, explains that comprehensive as was the treatment in that book of college sports and the diversions of undergraduate life, even to the inclusion of poker and stories involving horse-racing, certain representative sides of college life did not receive attention. One of the omissions was baseball; the other, the charms of feminine society. In a new volume entitled “Some other things,” which the Putnams are about to publish, the author rounds out his picture of the lighter side of college life, supplying the phases that did not find place in the earlier book. The subtitle assures us that in the new book "woman takes her proper place," and the cover design, which represents five hearts dangling from a wedding ring, each branded with a letter that goes to form the word "amour," holds forth promise of tender possibilities. Among the dozen new sketches and stories included in the volume is one entitled "A college baseball game from the players' bench."

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MISCELLANEOUS NOTES

At the Atlanta meeting of the American Association for the Advancement of Science, Professor Cattell gave the address of the vice-president for the section of education on "Science, education and democracy" and presided over the national convention of the Sigma Xi Society. He made an address on January 12, before the National Conference on Race Betterment at Battle Creek on "The causes of the declining birth-rate," and on that evening lectured at the University of Michigan on "Families of American men of science."

Dr. Linsly R. Williams has been appointed Deputy Commissioner of the State Department of Health. Dr. Williams graduated in medicine in 1899 and has been identified with public health work, has been a member of the Metropolitan Sewerage Commission and has been active in the Academy of Medicine and the New York Association for Improving the Condition of the Poor.

THE LIBRARY

Applied Science Libraries

In the University Library there is a collection of twenty-four thousand books relating to the applied sciences. Fifteen thousand of these are shelved in the general library and nine thousand in the department reading rooms. The collection is maintained primarily for the use of officers and students in the schools of Mines, Engineering, and Chemistry, although all readers are welcome. With a few exceptions any book in this collection may be borrowed by properly qualified persons for a short period of time.

Practically the entire collection of books on chemistry is shelved in the reading room in Havemeyer. All branches of chemistry, including colloid chemistry and other new phases of development, are represented. A collection of about four thousand chemical dissertations from the leading American and German universities has been added. A particularly strong feature of this library is the collection of chemical periodicals. The books on civil, electrical, and mechanical engineering are shelved in the reading room in Engineering. Sixty engineering periodicals are received in this room and back files of the majority are kept for reference. The best part of the collections on mining and metallurgy are shelved in the School of Mines library. This is probably the best collection of books in the city on the mineral industries. The collection of metallurgical periodicals is particularly good.

In an applied science library the great problem is that of keeping in touch with the latest developments in the industrial world. Books are unable to solve this problem, and to bridge the gap between the latest published book and the latest and most approved engineering practice, various other publications are used. In the chemistry reading room dissertations and periodicals supply the need. In the engineering reading room trade catalogues, blue prints, government and municipal reports, the publications of technical and professional sciences, as well as the technical periodicals, keep the library up to date.

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Thackeray

The Library recently acquired among discarded duplicates sent to it by one of the libraries with which it has exchange relations a perfect copy of the rare first edition of the privately printed pamphlet "Mr. Thackeray, Mr. Yates, and the Garrick Club, the correspondence and facts stated by Edmund Yates," London, 1859. At the sale of Major Lambert's Thackeray collection, February 27, a copy of this pamphlet was sold for one hundred and five dollars.

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Public Library Branch

On April 6 the New York Public Library, through its traveling libraries department, opened a station in the general library of Columbia University, Room 108 A, which is primarily intended for the circulation of books to the faculty and students of the University.

The station is open every week day from 8:30 to 12 a. m., and on Monday, Tuesday, Thursday and Friday from 1 to 5:30 p. m. Three thousand books in charge of an experienced librarian form the initial collection, which will be changed or increased as occasion demands. Two books may be borrowed for a period of two weeks with the privilege of renewal for a like period. Regular deliveries by automobile twice a week will enable the station to borrow books from all the other branches of the circulation department, about eighty thousand titles being available through this so-called interbranch loan system. An author catalogue of the books on the shelves will be kept at the station and printed lists issued by the Public Library will facilitate the borrowing of books from other branches.

SCHOOL OF MEDICINE

During the year 1913–14 sixty-three full or partial scholarships were awarded. Of the seventy-one men who receive their medical degrees this year, fifty-seven have already obtained hospital positions. During the last five years the percentage of students of medicine holding college degrees has been as follows: 1909–10, 51.83; 1910–11, 55.81; 1911–12, 63.75; 1912–13, 60.28; 1913–14, 73.06.

The record of cases treated in the Vanderbilt Clinic during 1913 is as follows:

Department	No. of Patients	No. of Visits
Medicine	11,360	42,363
Surgery	3,619	13,567
Orthopedic surgery	1,682	5,369
Neurology	2,251	10,583
Gynecology	1,882	5,530
Ophthalmology	3,206	7,149
Laryngology	3,206	7,429
Otology	1,208	3,616
Dermatology	2,514	8,020
Diseases of children	3,143	11,936
Genito-urinary diseases	1,089	7,001
Total	35,160	122,563

This, compared with 1912, represents a decrease of 1,792 in the number of patients and of 21,419 in the number of visits.

The courses in medicine that will be given during the summer will include bacteriology, cancer research, biological chemistry, pathology, practice of medicine, physiology, surgery, and obstetrics.

SCHOOL OF ARCHITECTURE

The School of Architecture is holding an extensive exhibition of oil and water painting, sketches in other media, and modeled work done by instructors, graduates and present students of the School. Exhibitors were requested to submit only non-architectural work, the purpose being to demonstrate the broad artistic scope of the graduates and the extent of their interest and production beyond the closer limits of their direct training and profession. The collection was directed by Arthur Ware, associate in architecture, and the exhibition is being held in the Avery Architectural Library from May 1 to June 7.

TEACHERS COLLEGE

At the February meeting of the trustees of Teachers College the instructors named in the following list were appointed to assistant professorships: Jean Broadhurst, Ph.D., biology; Mary Theodora Whitley, Ph.D., educational psychology; Cora M. Winchell, B.S., household arts education; Jesse F. Williams, A.B., physical education; Clifford D. Carpenter, A.B., chemistry; Harold B. Keyes, M.D., physical education.

Thomas H. Powers Sailer, Ph.D., educational secretary of the Presbyterian Board of Foreign Missions, member of the American section, Committee on Christian Education in the Mission Field, and member of the Board of Missionary Preparation, has been appointed by the trustees associate in education. Dr. Sailer will have direction of those students of the College who are preparing for missionary work in foreign fields.

In his trip through the south and west this spring Dean Russell visited New Orleans, San Antonio, Austin, Redlands, Los Angeles, San Luis Obispo, Stanford University, University of Nevada, University of Utah, Boise, Idaho, and the University of Wyoming. Professor Monroe served as acting dean during the absence of Dean Russell.

The College was represented at the meetings of the Department of Superintendence of the N. E. A. which were held at Richmond, Va., in the week February 23–28, by Professor Thorndike, who spoke on "The foundation of educational achievement"; by Professor Kilpatrick, who delivered before the Society of College Teachers of Education a paper on "The rating of prospective teachers"; by Professor Hillegas, who spoke before the Society on "The significance of state education surveys for departments of education of colleges and universities"; and by Professor G. D. Strayer, who made a report and led the discussion before the National Council of Education on "Standards and tests of efficiency of schools and school systems."

Upward of one thousand students and graduates of Teachers College attended the annual alumni conferences which were held at the

College February 21. The alumni dinner, given at the Aldine Club the evening of February 21 in commemoration of the twenty-fifth anniversary of the founding of the College, was attended by seven hundred and twenty-three graduates.

On a trip through the middle west in the early part of March Professor Monroe lectured at Wooster University, Ohio, and at Franklin College, Indiana, on the subject of "Education and service." Professor Thorndike lectured on February 20 and 21 before the teachers of Cincinnati at the conference on secondary education of the University of Cincinnati, and before the Schoolmasters' Club of Cincinnati.

Professor David Eugene Smith will be the official representative of Columbia University at the Roger Bacon celebration, to be held at Oxford on June 10. For this occasion he has prepared a paper on "Roger Bacon as a mathematician." He will also represent the University officially at the Tercentenary Napier celebration at Edinburgh on July 22.

Professor Kinne represented the College at the Conference for Education in the South at Louisville, Ky., April 8–10. Professors Cooley and Dow acted as delegates of the College at the meeting of the Eastern Manual Training Teachers Association at Atlantic City in April, at which Professor Cooley read a paper, on April 9, on household arts teaching. She will attend the June meeting of the American Home Economics Association at Cleveland.

Professor C. E. A. Winslow has been appointed associate in public health. His regular courses in the department of nursing and health, treating "Municipal sanitation and industrial hygiene," will be considerably enlarged next year, and a new course in "Health administration" will be offered, which will be open to any students of the College who wish to specialize in sanitary inspection or other forms of public health work.

The Bureau of Publications announces the following volumes, which recently appeared from the press:

In the Teachers College series of Contributions to Education: "The support of schools in colonial New York by the Society for the Propagation of the Gospel in Foreign Parts," by William Webb Kemp, Ph.D.; "The school drama: including Palsgrave's Introduction to Acolastus," by James L. McConaughy, Ph.D.; "Practice in the case of school children," by Thomas Joseph Kirby, Ph.D.; "Spelling ability: Its measurements and distribution," by B. R. Buckingham, Ph.D.; "The influence of reconstruction on education in the south," by Edgar Wallace Knight, Ph.D.; "Rural schools in Canada: Their organization, administration, and supervision," by James Collins Miller, Ph.D.; "School costs and school accounting," by J. Howard Hutchinson, Ph.D. Further publications of the Bureau are "School health administration," by Louis W. Rapeer, Ph.D.; "The psychology of learning," this being volume 2 of Professor Thorndike's "Educational psychology"; and "Worship in the Sunday school; A study in the theory and practice of worship," by Hugh Hartshorne, Ph.D. Professor Noyes's "Design and construction in wood-work" has recently come from the Manual Arts Press.

College of Pharmacy

The annual meeting of the College was held on March 17, and the following officers were elected for the coming year: President, Nicholas Murray Butler; first vice-president, Charles F. Chandler; second vice-president, William J. Schieffelin; third vice-president, Albert Plaut; treasurer, Clarence O. Bigelow; secretary, Thomas F. Main; assistant secretary, Edward W. Runyon; trustees to serve three years: Max J. Breitenbach, Frederick K. James, Jacob Weil, Robert S. Lehman, Irving McKesson.

Mr. Seldon O. Martin, Ph.D., instructor in commercial organization at the Harvard School of Business Administration, gave an interesting talk on the correct methods of accounting for retail druggists. There was a very large audience and among those who discussed the paper were Messrs. E. A. Boetzel, David Costelo, F. K. James, Oscar A. Kalish, D. T. Larimore, J. Leon Lascoff and H. O. Ryerson.

On the evening of March 11, the first of the student night celebrations was held. The College lecture hall was crowded with students and their friends who listened to an address by Professor Henry E. Crampton of Columbia University on "The academic spirit." The coach of the University baseball team told the students what was being done in athletics at the University and extended to any teams of the College which may be formed the privileges of South Field and the gymnasium. The student musical organizations gave an interesting program, the orchestra being led by Messrs. Atwood '14 and Ambrose '15, the glee club by Wirklich '14, and the mandolin club by Galateria '14.

Among recent accessions to the library is an autographed copy of Vorisek's "Qualitative chemical analysis" presented by the author, and a handsomely bound set of the proceedings of the Eighth International Congress of Applied Chemistry presented by Mr. M. J. Breitenbach.

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Department of Chemistry

Chemical Engineering

During the last six years there has been a steady increase in the number of students enrolled in the undergraduate course in chemical engineering, there being eight students in the class of 1911 as against thirty-nine in the class of 1916.

The investigation of Mr. John W. Bates on the utilization of southern pine waste, which was concluded last year, has been published in the *Pulp and Paper Magazine* of Canada and more recently in the *Journal of Industrial and Engineering Chemistry,* and has attracted much attention. It is anticipated that the processes developed in this research for the utilization of resinous woods in the manufacture of paper will undoubtedly lead to the much more extensive use of southern pine for this purpose. As a result of this work, Mr. Bates, who a year ago accepted a position with the Arthur D. Little Company, has recently been appointed director of the forest products laboratory of McGill University. This laboratory has been established by the Canadian government for the study of paper and pulp problems, and is unusually well equipped with apparatus and machinery. Early in the coming summer Mr. Bates will go abroad for the purpose of studying European installations of a similar character.

Mr. W. F. Rittman has completed his investigation on the practical applications of physico-chemical principles in the destructive distillation of petroleum oils. This interesting work will be embodied in a dissertation which he will present for the Ph.D. degree. The investigation will be published in a forthcoming number of the *Journal of Industrial and Engineering Chemistry.*

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Electrochemistry

In the electrochemical laboratory, the following investigations are in progress: Ernest Klepetko is studying the reduction of copper ores in the electric furnace. For this work a special arc furnace was originally built, but it now appears that the principle of resistance heating is likely to offer better advantages. With a view to determining the best design for such a furnace, the electrical conductivities of slags and furnace charges are now being determined.

Alexander Lowy is completing his research on the nature of silundum and its production. Valuable data as to its composition have been obtained, and a number of microphotographs have been made which it is expected will throw new light on the complex nature of this material.

Professor Tucker and Dr. Moody have carried further their investigation on the fixation of nitrogen. A special furnace has been built for the work being done here, while at Niagara Falls a second process is being tried out on a larger scale than is possible in the laboratory. Another investigation is in progress on the production of the alkaline earth metals by decomposition of their carbides in an electric vacuum furnace.

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Food and Sanitary Chemistry

The classes in sanitary and microscopic analysis, having outgrown their former quarters, have been moved into the large laboratory, a part of which is already devoted to food chemistry and organic analysis. Mr. Buswell, with the assistance of advanced students in the course, is studying improvements of methods in sanitary analysis, and the influence of softened water on certain digestive ferments.

Mr. Thomas, with the assistance of Dr. C. F. Hinck (Ph.D. Heidelberg 1913) is conducting a rigorous investigation of the influence of different conditions upon the activities of the amylolytic enzymes. Dr. E. C. Kendall (Ph.D. Columbia 1910) who was formerly connected with this research, has recently resigned his position at St. Luke's Hospital, to become chief chemist of the Research Hospital just established by Dr. Mayo at Rochester, Minnesota.

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Organic Chemistry

Chemistry 153, the so-called "trailer" in organic chemistry, given by Dr. Nelson, has made such a favorable impression that, at the request of the class, it is being continued during the second half year also (as Chemistry 154). Certain of the third-year chemical engineers are filling in their spare moments by taking additional organic laboratory work, as the demand for well trained organic chemists is now considerably in excess of the supply.

The laboratory has received about one thousand dollars worth of compressed yeast through the courtesy of Mr. Jacob Ruppert, brewer, for the investigations now being conducted by Dr. Nelson and his co-workers upon the chemical nature of invertase. This investigation is really a joint one, being carried out under the auspices of our organic laboratory and of the Harriman research laboratories of this city. Various valuable synthetic drugs and dye stuffs have been presented to the laboratory by the Elberfeld Company of this city through the courtesy of Dr. Hugo Schweitzer, and ten pounds of crude Pontianak rubber has been given by Mr. H. L. Brown of Newark, N. J., for use in connection with the study now being carried out by Dr. Fisher of the resins contained therein.

Dr. Nelson, together with Dr. Falk of the Harriman research laboratories, on March 19 addressed the chemical staff of the Rockefeller Insitute upon the subject of the "Electron conception of valence."

Professor Bogert is one of the incorporators of the new Museum of the Peaceful Arts, the plan for which was recently assented to by the State Board of Regents and by the Secretary of State.

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Inorganic Chemistry and Physical Chemistry

In the physico-chemical and inorganic research laboratories investigations already summarized are either still in progress, or completed; while certain new researches have been undertaken. These will be described in the September number of the QUARTERLY.

"A text book of elementary chemistry" by Professor Alexander Smith was published by the Century Company in March.

DEPARTMENT OF CIVIL ENGINEERING

The work of the department of civil engineering during the past year has covered a rather wide field of instruction which it is hoped may continue to extend in the future. The main or central course in civil engineering exhibits a field of instruction designed and developed in accord with the broad historical view that civil engineering is the main trunk and stem of all engineering not military or naval. This idea has been controlling in the administration of the department during the twenty-one years which have elapsed since its establishment. Divisions of instruction in the subordinate fields of railway work, hydraulics, steam, electric and hydraulic power developments, foundations, masonry and steel structural work in all its varieties, including long span suspension bridges, arch ribs and cantilevers and the various branches of municipal engineering of which highways constitute a marked feature, are all receiving effective care and are extended from year to year in response to professional demands.

The third year of the advanced or graduate work in highway engineering has just been completed with gratifying success. The number of students was materially greater than in the preceding year and the regular instruction work has been effectively supplemented by a large corps of lectures, men prominent in this field of engineering, both from the state of New York and beyond its limits. It is believed that this part of the educational work in engineering at Columbia is already having marked influence upon highway administration and construction not only in the state of New York but in other states also. The instructors conducting this work have by invitation delivered lectures at a number of points in the eastern states during the past year.

The course in sanitary engineering fortunately is now also placed on what may be considered a full fledged working basis. This course, with eminent propriety a differentiation from civil engineering, is now being actively sought by a considerable number of students which promises to increase rapidly. In fact, the number applying for this course during the past year exceeded the capacity of the equipment, but it is hoped that this limitation may be removed before another year. The course as now given may be considered essentially equivalent to the best courses found in this country. The demand for young sanitary engineers is already even beyond the capacities of the present courses of instruction in that field. There has also developed at Columbia an active demand, chiefly by students in the department of chemistry, for opportunity to take a number of sanitary engineering subjects without taking the course in full, and it is highly desirable to meet such demands.

The laboratories of the department, i. e., the laboratories for testing structural materials including cements, mortars and concretes, and the laboratory for the testing of all classes of roadway materials are located immediately in the department of civil engineering, while the laboratory facilities required for sanitary engineering work are in the jurisdiction of the department of chemistry. All these laboratories are constantly and actively engaged in their several lines of work, producing highly valuable results.

A specially important line of research work is being, and will henceforth be carried on in the department of civil engineering by the aid of the income received from the William R. Peters, Jr., research fund applicable to researches conducted in the materials testing and hydraulic laboratories of the department. A considerable amount of such work has already been accomplished and much more is now in active progress, including an extensive series of tests of reinforced concrete floor plates and columns, while further research work in the physical properties of steels, involving the accurate determination of quantities heretofore but partially or defectively established, is about to be undertaken. This fund enables the department to fulfill much more completely than heretofore its proper functions in a wide range of research work as well as in the work of instruction.

Department of Classical Philology

Professor McCrea was one of the speakers at the annual dinner of the chapter of Phi Beta Kappa at the University of Pennsylvania on March 27. He has been for eleven years secretary and treasurer of the Phi Beta Kappa Alumni in New York, and described in his address the nature of the influence which this association, now numbering about one thousand members, is exerting.

On April 18 Professor Young gave a talk illustrated by lantern slides, entitled "Notes on Delos" before the Classical Association of the Atlantic States at its eighth annual meeting at Barnard College.—On February 14 Professor Knapp lectured before the Baltimore Classical Club. On April 24 he lectured before the Philadelphia Classical Club. On April 25 he addressed the Classical Club of Pittsburgh and Vicinity.—Professor Sturtevant has been appointed by Governor Fielder a member of the Board of Education of the State of New Jersey, and will go into office on July 1 for a term of eight years.—On March 9 Dr. Shear delivered an illustrated lecture on "Lindos and Makri" before the Institute of Arts and Sciences.—On February 4 Miss Wye lectured on "How to study a language" before the Mothers Club of New Rochelle.

Department of Economics

Professor Seligman has been made a member of the Mayor's Committee on Taxation, and has been elected vice-president of the General Committee and chairman of the Executive Committee.

Professor Seligman has been made chairman of the Committee on Freedom of Academic Tenure appointed by the American Economic Association.

Professor Seager delivered an address before the Chamber of Commerce of the United States of America in Washington on February 12 on the pending trust bills. He has been serving as a member of the committee of the Chamber to draw up a report in reference to the need of additional trust legislation and to submit a questionaire to a referendum vote of the members.

On February 27 and 28 the American Association for Labor Legislation, of which Professor Seager is president, held a national conference on unemployment in New York City. In addition to presiding over the sessions, Professor Seager delivered an address at Cooper Union on the evening of February 27 on Great Britain's policy with reference to the unemployment problem.

The conference of the Carnegie Endowment for International Peace will reconvene in June at Berne, Switzerland. Professor John B. Clark is director of the division of economics and history, which has charge of the conference.

Professor Chaddock has been appointed chairman of a committee of the American Statistical Association to prepare a report in reference to the vital statistics of New York City, the object of which is to urge upon the new city administration the appropriaion of more funds for the extension of the statistical research and publicity activities of the Department of Health.

On March 20, in the assembly room of the Metropolitan Insurance Building, an address to the group of public health nurses of New York City, which now number several hundred, was made by Professor Chaddock on "The basis of social action."

Professor Eugene E. Agger delivered an address on "The currency bill" in Providence, on March 12, before the Town Criers' Association.

Department of Electrical Engineering

The department of electrical engineering has considerably improved its photometric laboratory by the addition of a Sharp-Millar portable photometer which it has recently purchased and the construction of a bar photometer for which it has purchased a new Lummer Brodhun screen. This apparatus has been set up in the instrument laboratory.

The inspection trips of the department have been of increased interest this year, inasmuch as the naval officers pursuing post-graduate work at the University have accompanied the senior electrical engineers on these trips.

In connection with the Electrical Engineering Society the following evening lectures have been arranged: "Electric welding," Professor M. Arendt; "Electric submarine boats," Mr. C. H. Bedell, and "The gyroscope for marine purposes," Mr. E. A. Sperry.

DEPARTMENT OF ENGLISH AND COMPARATIVE LITERATURE

The courses in English for the coming summer session will be given by Professors Trent, Thorndike, Odell, Krapp, Ayres, Baldwin, Tassin, Doctors Steeves and Van Doren, of the department, and by Professors A. H. Upham, of Miami University, and D. E. Watkins, of Knox College.

Some seventy students taking the major part of their work in English or comparative literature are candidates for the A.M. degree this June.

The following instructors in the department have been promoted to the rank of assistant professor to take effect July 1, 1914: Dr. E. H. Wright, Dr. Carl Van Doren and Dr. H. R. Steeves.

Mr. Elbridge Colby, A.B., Columbia, 1912, A.M., 1913, has been appointed instructor in English in Columbia College.

DEPARTMENT OF GERMANIC LANGUAGES AND LITERATURES

Professor Rudolf Tombo, Jr., delivered an address at the first annual meeting of the Froebel Kindergarten Society on March 16, and spoke at the Quill Club on German and American universities on March 17. He presented a paper on comparative university registration statistics at the fifth annual meeting of the American Association of Collegiate Registrars, held recently in Richmond, Va. On April 6 he delivered an address under the auspices of the Women's Club of New Rochelle, N. Y.

On April 11 Professor F. W. J. Heuser delivered a lecture on "Heine" under the auspices of the Board of Education of New York City.

Dr. Richard delivered a series of eight lectures under the Board of Education of New York City on "How they do things in Germany and why." On March 26 he lectured at Columbia University on "Der germanische Geist in der Kunst des Mittelalters." He also gave a series of five lectures on "Ancient and mediaeval culture in Germany" at Saratoga Springs in March and April.

Dr. Porterfield lectured on March 7 before the *Verein Deutscher Lehrer von New York* on "Dichter als Helden deutscher Dichtung;"

on April 18 under the auspices of the Board of Education of New York City on "Nietzsche," and on April 26 and May 3 he delivered addresses before the Religious Forum of St. Paul's Methodist Church on "Three types of growth" and "Martin Luther." Mr. Palmblad has contributed the article on Scandinavian literature for the New International Year Book for 1913.

Mr. Leonard C. Van Noppen, Queen Wilhelmina lecturer at Columbia University for 1913–1914, delivered the following lectures on the literature of Holland before the Institute of Arts and Sciences of Columbia University: November 11, Dutch origins—the character of the Dutch and their influence on American institutions; November 18, Vondel, the poet of the sublime; November 25, Vondel's "Lucifer," its influence on Milton's "Paradise Lost"; December 2, Vondel's "Samson," the prototype of Milton's "Samson Agonistes"; December 9, Hooft and Huyghens, the romantic poets of the Dutch renaissance; December 16, Van Eeden and the Nieuwe Gids school, with a discussion of the literature since 1880. On October 24 Mr. Van Noppen lectured before the Germanistic Society of America in Schermerhorn Hall on the "Renaissance in Dutch literature"; on January 16 he addressed the Association of Doctors of Philosophy of Columbia University on "Vondel, the Dutch Shakespere, and his masterpiece Lucifer"; on January 20 he delivered a lecture on "Miltonic origins" before the Germanic Club of Columbia University, and on March 6 an address before the Graduate English Club of Columbia University on "Holland in the Renaissance."

Department of History

Professor Robinson in collaboration with Professor Rolfe has recently brought out a new and enlarged edition of the letters of Petrarch. A new book by Professor W. M. Sloane, "The Balkans; a laboratory of history," was published in March. Professor C. H. Hayes acted as one of the judges in the debate between Princeton and Yale on May 8.

School of Law

John Bassett Moore, Hamilton Fish professor of international law and diplomacy of the University, has resigned as counselor for the State Department at Washington. He accepted the place only temporarily, taking a year's leave of absence for the purpose, and it is expected that he will return to his duties at Morningside at the beginning of the next academic year. He is engaged in writing a life of the statesman in whose honor his chair is named, and is also preparing a new edition of his "History and digest of international arbitrations," which was published in six volumes in 1898. The new edition, which is intended to be definitive, is to embrace all arbitrations, ancient and modern, and will present the history and results of the arbitrations to which the United States was not a party as fully as of those in which the United States was directly concerned.

Professor Nathan Abbott has been absent on leave during the second half of the year. He sailed for England early in February, with the intention of spending a large part of his sabbatical year in that country.

The law faculty has been strengthened by the addition of Professor R. W. Gifford, now of the Yale Law School. He is well known by Columbia men, as he has given numerous courses here.

Dean Stone's illness has been the source of deep lament in the Law School. His courses in mortgages and trusts have been taken by Professor Kirchwey and Professor Gifford, and his executive duties have been shared among resident members of the faculty. But no one could fill his place, and his associates and students have watched the bulletins with great anxiety. All are rejoicing in the prospect of his early recovery.

Fourteen law students completed their LL.B. course at midyear and were recommended for the degree.

DEPARTMENT OF MECHANICAL ENGINEERING

In the recognized manner of large industrial organizations, where executive heads meet weekly to exchange ideas, to lend mutual aid and to maintain efficient contact between departments, the staff members of this department have been meeting weekly for similar efficient ends. Constructive criticisms of intra-departmental and inter-departmental activities and relations are offered and discussed and policy defined. Intra-departmental relations undergo rigorous analysis and the present meetings concern themselves with the formulation of clear definitions of the objective, scope and point of contact of each part of the graduate course of study. With a definite objective preestablished, each instructor has planned his course in minute detail with the elimination of unnecessary repetition. His order of presentation of his subject matter is related to parallel courses in this and in the other departments. The critical analysis of each course at the weekly meetings or conferences has provided each instructor with a knowledge of the con-text and order of presentation of the other courses. Graphic charts have been used at the meetings to summarize and visualize the work of many preceding meetings. The end sought is a unity of action in creating a new course on a strictly graduate basis. The higher graduate standards to be maintained are being anticipated by the preparation of a number of new books. These will be professional books and the best professional practice is being drawn upon for their treatment. The comprehensive nature of each book will indicate how much the requirements of the mechanical engineering profession have advanced and how educational methods have advanced here at the same time.

The effective character of the training now afforded in this department is admirably illustrated by the confidence imposed by the naval authorities. The naval lieutenants now studying here have been granted an extension of their time and will remain a part of the summer to complete their researches in vital naval mechanical engineering problems. Professors Lucke and Rautenstrauch periodically go to Annapolis and conduct their courses there for the navy men who will come to this department for advanced study next fall.

Professor Rautenstrauch is on sabbatical leave. Lincoln DeG. Moss, formerly chief engineer of the Robins Belt Conveyor Co. and designer of some famous conveying installations, has assumed his duties. Mr. Moss will be retained on Professor Rautenstrauch's return, and his addition to the staff is an indication of the changing character of the engineering teacher from the pedagogical type to that of the man of engineering achievement.—Mr. Geo. F. Wieser will leave at the end of the academic year and Mr. C. Oscar Riedel, formerly of the Allis-Chalmers Co. and later of the Vilter Mfg. Co. of Milwaukee, will assume his duties on the laboratory staff, where his wide shop-erecting and testing experience will prove of great value.

Department of Mineralogy

The only change in staff for the coming year is the appointment of C. W. Greenland, B.S., School of Mining, Kingston, Ontario, to succeed Mr. Bruce in the position of assistant in mineralogy.

The new courses (105 and 10) have given opportunity to test out the practicability of introducing the microscope into ordinary testing of minerals by means of crushed fragments, and the same methods have been used to a limited extent in the courses given to mining engineers. The results have been very satisfactory and it is therefore planned under the new six-year curriculum to give the courses of the first year in the graduate school in the museum at tables at the windows and to use the microscope freely and to build up an entirely new collection for student work in the drawers of the museum, giving the students access in this way to specimens which retain their localities and which lie directly beneath handsomer specimens in the cases. To make this method of teaching possible the aisles have been somewhat narrowed so as to secure broader aisles near the windows and certain minor collections have been moved to the gallery.

In connection with the fiftieth celebration of the School of Mines we have been interested in assembling the original collection which was turned over to Dr. Egleston by the College in '63. There were probably 3,000 specimens in this collection, but for the most part they were of low grade, often, as stated by one of the formers of the collection, merely "souvenirs of the locality at which I myself obtained them." Their value was further lessened by the fact that in the transfer from the old College Place site to the 49th Street site the labels and specimens had been badly mixed and the collection had not been reassembled. Dr. Egleston personally labeled these specimens in so far as it was possible and the specimens which we have been able to re-assemble have the under-label in his handwriting on the cards marked "College collection." Another fact is that the old catalogues made by N. F. Moore, at one time president of Columbia and author of Moore's "Ancient mineralogy," and by James Renwick, who sold his collection to the Trustees of Columbia College, are in the possession of the department.

In the summer of 1913 there was given for the first time a course in gems and gem minerals. In this work a considerable number of additional specimens of gem quality were obtained or cut and all these have been assembled, forming two cases of very attractive material.

DEPARTMENT OF MINING

At the request of the United States Bureau of Mines, a section in one of the rooms in the mining laboratory has been assigned to a representative of the Bureau, Mr. W. E. Gibbs, who has equipped it as a workshop and, with an assistant, is conducting experiments looking towards the improvement of the oxygen helmets so largely used in rescue work and fire fighting in coal mines. The automatic valves hitherto employed have proved to be wasteful of oxygen, and sometimes uncertain in operation, especially when operated by an imperfectly trained worker, under stress of excitement, and the number of fatalities due to this cause has been alarming. An improved form of valve already developed by the Bureau's representative promises a satisfactory solution of these defects.

The greater part of the mining departmental library has been moved into a new and larger room on the third floor, where it has been combined with that of the Department of Metallurgy, thus forming an extensive collection of reference books, to be known as the Library of the School of Mines. It will be in charge of a permanent assistant from the staff of the general library. All of the catalogues and some of the books most frequently consulted by the senior students in mining have been retained in the mining drafting room.

Professor Munroe, head of the department, on the urgent advice of his physicians, was persuaded to take a rest from his University work at the middle of February. On March 31, he had so far recovered from his illness as to be able to start for Europe with Mrs. Munroe. The date of his return can not yet be announced. During his absence, his lecture courses have been divided among other members of the department.

The only recent addition to the laboratory equipment is an agitator for conducting experiments on the flotation of ores, the gift of Mr. James M. Hyde. The Deister Concentrator Company has promised the gift of one of their latest sand concentrators. A valuable addition to the museum collection was received from the DuPont Powder Company, comprising dummy samples of a large variety of their explosives, fuses, detonators, etc.

The department has recently had the advantage of several special lectures from practicing engineers, notably one by Mr. Adolph Lewisohn on "Mining as a business"; Mr. H. W. DuBois, on "Detection of mine salting": Mr. N. B. Knox, '97 S. of M., on "Prospecting and developing gold placer deposits."

Within the year, the department has gained the privilege of using an abandoned mine at Roxbury Station, Conn., about 15 miles from Camp Columbia, at Morris. The property was first opened as a lead-silver mine about 150 years ago; it then entered a financially disastrous career as an iron mine, and a large tonnage of carbonate ore was mined, and was smelted on the premises. The mine has now been idle for about 50 years, and it is to the courtesy of its present owner, Mr. A. L. Hodge, that the School of Mines owes its opportunity to use the mine at the nominal rental of $1 per year. The primary object of securing the mine is to provide a suitable, permanent, and convenient place in which to conduct classes in mine surveying alone. No idea has been entertained of giving instruction in the practical details of mining, since for that work other and better arrangements are in force. Incidental to the process of clearing out the refuse in the mine and making it safe for students, Professor Munroe has proposed to conduct experiments on certain details of mine operation, but not as a course of instruction. The mine is opened by several self-draining levels, connected by shafts and winzes. At least two years will be required to put the mine in shape, drawing only on the regular departmental appropriation. Owing to a generous gift of $1000 from Dr. James Douglas, it has been possible to make an immediate beginning.

The program of exercises in celebration of the Fiftieth Anniversary of the School of Mines is as follows: May 28th: Reception, University Gymnasium, 9 P. M. May 29th: Convocation, University Gymnasium, 10 A. M. Address of welcome, President Butler. Historical address, Professor Henry S. Munroe. Address: Mining as a profession, Hennen Jennings. Address: The miner as a pioneer of industry, T. A. Rickard, of the Royal School of Mines, England. Conferring of honorary degrees upon the graduates of the Schools of Mines, of Engineering, of Chemistry, and of Architecture: Professor Emeritus Van Amringe, Presentation Orator. Alumni luncheon, University Commons, 1 P. M. Inauguration of Chandler Lectureship and presentation of Chandler Medal: Leo H. Baekeland, Ph.D., Lecturer, 3 P. M. Presentation of Memorial tablet, Older Graduates, 4:30 P. M., Departmental teas, 4:30–6:00 P. M. Anniversary dinner, Waldorf-Astoria Hotel, 7:30 P. M.

DEPARTMENT OF MUSIC

The Stransky Concert

The Philharmonic Society of New York, Mr. Josef Stransky, conductor, gave a concert in the gymnasium on the evening of Saturday, March 28. The concert was held under the joint auspices of the department of music and of the Institute of Arts and Sciences, and was provided through the interposition and kindly assistance of Mr. Stransky, being offered to the officers and students of the university without charge. The University is greatly indebted to Mr. Stransky for his interest in providing such a musical treat and for the opportunity of hearing the Philharmonic Society on the campus. The program was as follows: Fifth Symphony—Beethoven; Prelude and Liebestod ("Tristan and Isolde")—Wagner; Symphonic Poem, "Les Preludes"—Liszt; Introduction to the third act of "Lohengrin"—Wagner; The ride of the Valkyrs—Wagner.

The annual concert of student's compositions took place on May 6. The program comprised fifteen songs, six pieces for solo instruments, a sonata for violin and piano, a trio for viola, clarinet and piano, a trio for violin, cello and piano, and two string quartets.

Professor D. G. Mason, who has spent the past year abroad in study and composition, has returned to this country.

DEPARTMENT OF PHILOSOPHY.

The department of philosophy is to offer several new courses in the ensuing year. Professor Miller will give an undergraduate course on "Ideals of life in modern literature"; and Professor Bush will offer a course on "Readings in the literature of philosophy." In the graduate school Dr. H. A. Brown will offer a course on the "Fundamental problems of philosophy," designed for those interested in philosophy, though registered in other departments, as well as for the students specializing in philosophy. All the courses numbered from 100 to 200 have been organized with a similar purpose in view. Father Clifford will give a course in "Scholasticism" running throughout the year. Dr. McClure will offer two half-year courses on "Continental and British philosophy," and Dr. Slonimsky will lecture on "Kant and Schopenhauer."

Dr. Cooley will be absent during 1914–15 on leave. He will give the course in ethics in Vassar College. Dr. Henry Slonimsky and Mr. Robert Owen have been appointed lecturers for the coming year. Professor R. B. Perry of Harvard will lecture during the summer session. Professor Bush has been on leave of absence during the present year; as has Professor Fullerton, who has been lecturing at several European universities, and will remain away next year.

Six men in Columbia College have taken work for honors in philosophy. They have met in bi-weekly conferences at which essays on classic texts have been read, and at the close of each semester original papers on philosophical topics have been presented. The graduate philosophical conference, which has met regularly since January, 1912, has completed a successful year. Papers have been read by the more advanced graduate students. The conferences have been well attended by the officers of the department, as well as by the graduate students, and interesting general discussions of the papers have seldom failed to develop. The department has had the good fortune during the year to listen to addresses by Professor Émile Boutroux, president of the institute, Professor Alois Riehl of the University of Berlin, the Honorable Bertrand Russel, and Mr. Carr, secretary of the Aristotelean Society of London.

DEPARTMENT OF PRACTICE OF MEDICINE

Dr. Longcope read a paper on "Some factors in the diagnosis and treatment of syphilitic aortitis," before the Academy of Medicine, Cleveland, Ohio, on February 27. Dr. Vogel spoke on "Newer standpoints in the diagnosis and treatment of anaemia," before the Associated Physicians of Montclair, N. J. and vicinity, on February 26.

DEPARTMENT OF PSYCHOLOGY

Professor Cattell, as vice-president of the American Association for the Advancement of Science, delivered at the Atlanta meeting an address on "Science, democracy and education." He also read a paper on the "Birth rate," before Section H of the Association, and lectured on the same topic at the Conference on Race Betterment recently held at Battle Creek.

At the Atlanta meeting, Dr. Strong acted as secretary of Section H, and presented a paper on "Two factors of economical learning."

At the New Haven meeting of the American Psychological Association, papers were presented by Dr. Hollingworth on "Some characteristics of judgments of evaluation," and by Professor Woodworth on "The question of 'quick learning, quick forgetting.'" Professor Woodworth was elected president of the Association for 1914. Dr. Poffenberger recently lectured before the Civic Club of Rockville Center on "Deficient children."

DEPARTMENT OF SOCIAL LEGISLATION

Proceedings of the Academy of Political Science

A review of the current volume of the *Proceedings of the Academy of Political Science* notes a happy combination of work in several departments of the University and points to the value of cooperation on the part of the University with such work as that being carried on by the National Committee on Prison Labor in University Hall.

Entirely outside of the merit of the prison labor problem the fact that the state of Wisconsin came for expert advice to the Columbia campus is in line with our scientific spirit, while it is gratifying to find the founder of the graduate highway department, Mr. Charles Henry Davis, contributing to this coordination of functions by his able introduction to the volume.

The announcement that Mr. Adolph Lewisohn, the donor of the School of Mines building, has become the executive head of the National Committee on Prison Labor presages a continuance of this coordination of activities.

Dr. E. Stagg Whitin, assistant in social legislation, has prepared for the Henry Bergh Foundation for the Promotion of Humane Education in Columbia University an interesting study of the laws of Continental United States, that is, of the forty-eight states and the District of Columbia, regulating the treatment of prisoners during confinement. This study has been published under the caption: "The caged man," in the proceedings of the New York Academy of Political Science, and has also appeared separately in the first issue of the Bulletin of Social Legislation, issued by Columbia University. It is the first fruits of certain recent investigations undertaken by the Bergh Foundation since the publication of Professor R. C. McCrea's book entitled "The humane movement," which was published by the Columbia University Press in 1910. Professor McCrea made an historical survey of the subject of humane education and the prevention of cruelty to animals and children, tabulating the legislation on the subject of cruelty to animals and children, including all statutes in the United States prior to January first, 1908, and also including some that were passed in 1908 and 1909.

Frank B. Williams, Esq., of New York City, has completed the tabulation of legislation for the prevention of cruelty to animals from the time when Professor McCrea's tabulation ends down to 1913; and Dr. C. C. Carstens, of the Society for Prevention of Cruelty to Children in Boston and also a lecturer in Harvard University, has done the same for legislation for the prevention of cruelty to children.

These two additional tabulations together with annotations and notes, have been prepared under the direction of Professor Samuel McCune Lindsay, editor of the Bulletin of Social Legislation, and will appear in a subsequent number, which is about to go to press. The first number of the Bulletin containing Dr. Whitin's study, "The caged man," presents for the first time the materials for a thorough study of problems that are attracting wide attention in this country, and relate to the humane treatment of prisoners. Dr. Whitin had already made himself an authority on the subject of prison labor and is the chairman of the executive committee of the National Committee on Prison Labor, for which he has published a notable monograph entitled "Penal servitude" (1912). "The caged man" carries these studies a stage farther and gives a vivid picture of what a prison sentence means. It also brings out clearly the mass of confused, poorly drawn and ill-conceived statutes which govern the treatment of prisoners in the United States and shows conclusively the absence of any well thought out or uniform plan for dealing with prisoners in a rational way that would harmonize with the more enlightened and humane principles of modern criminology and penology.

Department of Therapeutics

Dr. Bastedo has recently presented two papers, one before the Richmond County Medical Society on "Simple measures in the treatment of intestinal stasis," and one before the Union County Medical Society at Elizabeth, New Jersey, on "The bismuth meal X-ray picture in diagnosis."

Department of Zoology

A series of lectures on "Men of the old stone age, their environment, life and art" was delivered by Professor Henry Fairfield Osborn in cooperation with the Institute of Arts and Sciences of Columbia University, as follows: April 13, The origin of man: speculation and discovery; April 14, The three oldest races, Trinil, Piltdown, Heidelberg; April 15, Period and culture of the Neanderthal race; April 16, Culture and appearance of the Cro-Magnon race; April 17, Art of the Cro-Magnons. Sixth or Grenelle race.

UNIVERSITY LEGISLATION

The Trustees

March meeting.—The thanks of the trustees were tendered:

To Mrs. Francis P. Furnald for her additional gift of $50,000 for the completion and furnishing of Furnald Hall.

To the trustees of the East River Homes for their gift of $4,000 to be used to defray the expenses of medical treatment of indigent persons who are residents of the City of New York.

To the French government for the gift made through the Ministry of Foreign Affairs of three thousand francs for the equipment and furnishing of the Maison Française.

To the Association of National Advertising Managers for their gift of $375, in payment of the quarterly instalment of the stipend of the advertising research fellowship.

To Dr. George Otis Smith for his gift of $200, to be added to the principal of the Samuel Franklin Emmons memorial fund.

To Samuel Sloan, treasurer of the University Alumni Commemoration Fund, for the gift of $167.48, to be applied toward general expenses.

To F. Augustus Schermerhorn, class of 1868, for his gift of $75, to be applied toward the tuition fee for 1913–14 of a designated student in Columbia College.

To Frederic R. Coudert, of the class of 1890, for his gift of $10, to be added to the maintenance fund of the Maison Française.

The President reported the death, on February 6, 1914, of William Kelly Simpson, M.D., professor of laryngology.

The President reported that, in accordance with an arrangement with the Austrian Kultusminister, beginning with 1914–15 the visiting American professor will go to Austria for the second or summer semester of each year and the visiting Austrian professor will hereafter come to Columbia University for the second half-year.

Upon the recommendation of the trustees of Teachers College it was voted that Article 7 of the agreement between Columbia University and Teachers College, dated April 6, 1900, be amended to read as follows:

Seventh: That, so long as this agreement is in force, Teachers College shall grant no degrees or diplomas, except that Teachers College may award diplomas for proficiency in teaching or educational administration, in such form or forms as the University may approve, to persons who have received academic degrees.

The resolution adopted December 7, 1908, providing for alumni representation, was amended to read as follows:

Resolved, That, in order to afford the alumni direct and responsible representation upon this board, six of the trustees elected after January 1, 1909, may be nominated in the manner and subject to the conditions hereinafter described. The trustees elected upon such nomination shall be styled "alumni trustees." As vacancies occur from time to time the board of trustees may direct for which of them nominations are to be invited from the alumni; and whenever and as often as the board shall direct that such nominations are to be invited, notice thereof shall be given and a nomination shall be made in the following manner:

(*a*) One nomination shall be asked for from a nominating committee of the alumni, such committee to be composed of one or more representatives of each alumni association and alumni club, within the Alumni Federation, having ten or more members who are alumni of any of the schools maintained by the trustees, provided that such associations and clubs are duly registered with and accepted by the trustees. The representatives of every such association and club upon the nominating committee shall be chosen in such manner as that association or club shall determine.

Every such association or club shall

be entitled to representation as follows: those having not less than ten nor more than fifty active members in good standing, one representative; those having more than fifty and not more than one hundred such members, two representatives; those having more than one hundred such members, three representatives. Every such association and club shall be entitled to cast as many votes by its representative or representatives, present in person, as it has active members in good standing.

The active members of the Alumni Federation, who are not members of an association or club, shall also be entitled to representation upon the nominating committee in the same proportion, viz., one representative for every ten such members; two representatives for every fifty such members; and three representatives for every one hundred or more such members; and such representative or representatives present in person shall be entitled to cast as many votes as there are such members of the Federation.

(*b*) The nominating committee shall meet at the University on notice of not less than sixty days, and the executive secretary of the Alumni Federation shall issue notices of such meeting when so requested by the trustees, and he shall, as soon as practicable after the meeting is held, report to the clerk of the trustees the nomination presented by the committee.

(*c*) No person shall be eligible as a representative upon the nominating committee or for nomination as alumni trustee, who is officially connected with the University, or who is not an active member of such duly registered and accepted association or club or of the Alumni Federation, or who has not held for at least ten years one of the degrees established by the statutes of the University, conferred for work done in one of the schools maintained by the trustees.

(*d*) Every such nomination presented to the trustees by the nominating committee shall be accompanied by a letter stating that upon his election the person nominated will file with the clerk of the trustees his irrevocable letter of resignation as alumni trustee to take effect at the expiration of six years from the date of election, or at the end of such other term as the trustees may prescribe under paragraph *g* of this resolution, and that he will be ineligible for one year thereafter for nomination as an alumni trustee, and the election of such nominee by the trustees shall take effect only upon the filing of such letter of resignation.

(*e*) To qualify an association or club to participate in the nomination of alumni trustees under the terms of this resolution, such association or club shall file with the executive secretary of the Alumni Federation a copy of its constitution, showing that it comes within the provisions of paragraph *a* of this resolution, and a list of its active members, not less than ten in number, who are regularly enrolled, together with a certificate signed by the secretary and treasurer of such association or club showing the number of active members in good standing for the current year.

(*f*) Each nomination presented to the trustees, in accordance with the provisions of this resolution, shall be accompanied by a statement from the executive secretary of the Alumni Federation containing the names of the associations and clubs which have duly qualified under the foregoing sections and have complied with the provisions thereof, and of the number of votes cast by each association or club for the nominee, and a similar statement as to the number of votes cast by representatives of the Federation.

(*g*) Until all of the six alumni trusteeships shall have been filled and the terms of the incumbents so arranged that one vacancy therein will regularly occur at the end of each academic year, the length of the terms of the alumni trustees shall be arranged by the trustees so as to effect such regularity at the earliest practicable time.

Beginning in 1915 the nominating committee shall annually on or before the day preceding Commencement, nominate a successor to the alumni trustee whose term is about to expire, and such nomination shall be for the term of six years from the beginning of the next academic year.

(*h*) The term active member as used in this resolution shall be construed to include any member of a registered association or club, or of the Federation, who holds a degree conferred for work done in any of the schools maintained by the trustees.

Resolved, That the following sums be and they are hereby appropriated for the maintenance and operation of the work of the University for the fiscal year ending June 30, 1915, namely:

For educational administration and instruction..		$2,135,955.51
For buildings and grounds		262,048.00
For the library...........		110,048.75
For business administration		58,920.00
For annuities		46,080.00
For taxes and other charges upon the Loubat and Williamsbridge properties (including interest apportioned to the Loubat property)		109,820.00
For interest on the corporate debt....	$138,745	
Less interest apportioned to the Loubat property	22,720	116,025.00
For payment on account of redemption fund, due June 1, 1915		100,000.00
Making in all the sum of		$2,938,897.26

which sum is made chargeable as shown in detail in the accompanying schedules:

To the income of the corporation	$1,968,635.49
To the income of special funds	361,908.59
To gifts	160,423.18
To moneys to be paid by Barnard College	137,710.00
To moneys to be paid by Teachers College	200,400.00
To special real estate account—Loubat and Williamsbridge properties...	109,820.00
	$2,938,897.26

Resolved, That pursuant to the provisions of the by-laws, chapter 10, section 11, the income of the John Stewart Kennedy fund for the year ending June 30, 1915, together with any accumulation of income, be added to the general income of the corporation for that year.

Resolved, That for the year 1914-15 only, the number of scholarships established by the provisions of the statutes, chapters 30 and 31, and made chargeable to the general income of the corporation, be decreased as below stated; and that additional scholarships, chargeable to the accumulated income of the special funds named, and awarded in accordance with the terms upon which such special funds have been established, be granted, the holders to be subject to the rules and regulations governing scholarships:

University:

In lieu of 13 University scholarships @ $150:

- 2 additional University scholarships, awarded in accordance with the terms of the Garth fellowship fund, @ $150.
- 2 additional University scholarships, awarded in accordance with the terms of the Annie P. Burgess scholarship fund, @ $150.
- 1 additional University scholarship, awarded in accordance with the terms of the Dr. Daniel M. Burgess scholarship fund, @ $150.
- 2 additional University scholarships, awarded in accordance with the terms of the A. M. Proudfit fellowship fund, @ $150.
- 1 additional University scholarship, awarded in accordance with the terms of the Richard Butler scholarship fund, @ $150.
- 3 additional University scholarships, awarded in accordance with the terms of the Carl Schurz fellowship fund, @ $150.
- 1 additional University scholarship, awarded in accordance with the terms of the Schiff fellowship fund, @ $150.
- 1 additional University scholarship, awarded in accordance with the terms of the Toppan prize fund, @ $150.

Columbia College:

In lieu of 7 benefactors scholarships @ $175:

- 2 additional scholarships, awarded in accordance with the terms of the Bennett prize fund, @ $175.
- 1 additional scholarship, awarded in accordance with the terms

of the Bunner prize fund, @ $175.

1 additional scholarship, awarded in accordance with the terms of the Chanler historical prize fund, @ $175.

2 additional scholarships, awarded in accordance with the terms of the Class of 1848 scholarship fund, @ $175.

1 additional scholarship, awarded in accordance with the terms of the Mitchell fellowship fund, @ $175:

School of Law:

In lieu of 12 benefactors scholarships @ $150:

10 additional scholarships, awarded in accordance with the terms of the Beck prize scholarship fund, @ $150.

1 additional scholarship, awarded in accordance with the terms of the Convers prize fund, @ $150.

1 additional scholarship, awarded in accordance with the terms of the Ordronaux prize fund, @ $150.

College of Physicians and Surgeons:

In lieu of 4 faculty scholarships @ $250; 4 Vanderbilt scholarships @ $250; and 16 additional scholarships @ $250.

8 additional scholarships, awarded in accordance with the terms of the Blumenthal scholarship fund, @ $250.

5 additional scholarships, awarded in accordance with the terms of the Alonzo Clark scholarship fund, @ $250.

3 additional scholarships, awarded in accordance with the terms of the Harsen scholarship fund, @ $250.

4 additional scholarships, awarded in accordance with the terms of the Smith prize fund, @ $250.

2 additional scholarships, awarded in accordance with the terms of the Stevens triennial prize fund, @ $250.

2 additional scholarships, awarded in accordance with the terms of the Du Bois fellowship fund, @ $250.

Architecture:

In lieu of 5 additional scholarships @ $250.

5 additional scholarships, awarded in accordance with the terms of the Columbia fellowship fund, @ $250.

On motion, $2,017 was appropriated to meet the cost of urgent repairs on the University buildings and grounds.

The President presented the annual report of the Sloane Hospital for Women, showing a balance on January 1, 1913, of $2,575,17; receipts, $101,912.18; expenditures, $99,248.58; balance, December 31, 1913, $5,238.77. Number of patients, 2,610.

The President presented the annual report of the Vanderbilt Clinic for the year ending December 31, 1913, showing a balance on December 31, 1912, of $4,841.27; sale of prescriptions, etc., $22,360.14; interest on investments, $5,738.78; Vanderbilt Clinic Day Camp, $7,500; gifts from East River Homes Company and Dr. Edwin B. Cragin, $1,655; total receipts, $42,095.19. Expenditures, $35,808.30. Balance, December 31, 1913, $6,286.89.

Leaves of absence were granted as follows: For the entire academic year—George Stuart Fullerton, LL.D., professor of philosophy; Samuel Train Dutton, LL.D., professor of school administration in Teachers College; David Eugene Smith, LL.D., professor of mathematics in Teachers College. For the first half of the academic year—Julius Sachs, Ph.D., professor of secondary education in Teachers College. For the second half of the academic year—Frank Morton McMurry, Ph.D., professor of elementary education in Teachers College.

The resignation of Robert E. MacAlarney, A.B., associate professor of journalism, was accepted.

The following promotions were made: Bergen Davis, Ph.D., now assistant professor of physics, to be associate professor of physics; Louis A. Loiseaux, B.S., now assistant professor of Romance languages and literatures, to be associate professor of Romance languages and literatures; James H. McGregor, Ph.D., now assistant professor of zoology, to be associate professor of zoology; Arthur F. J. Remy, Ph.D., now assistant professor of Germanic philology, to be associate professor of Germanic philology; Dino Bigongiari, A.B., now instructor in Romance languages and literatures, to be assistant professor of Romance languages and literatures; Arthur C. Neish, Ph.D., now instructor in chemistry, to be assistant professor of chemistry; John M. Nelson, Ph.D., now instructor in organic chemistry, to be assistant professor of organic chemistry; Harrison R. Steeves, Ph.D., now instructor in English, to be assistant professor of English; Edward D. Thurston, Jr., Mech.E., now instructor in mechanical engineering, to be assistant professor of mechanical engineering; Carl Van Doren, Ph.D., now instructor in English, to be assistant professor of English; Harold W. Webb, Ph.D., now instructor in physics, to be assistant professor of physics; Ernest H. Wright, Ph.D., now instructor in English, to be assistant professor of English. Upon the nomination of Barnard College—Harry L. Hollingworth, Ph.D., now instructor in psychology, to be assistant professor of psychology; Henri F. Muller, Ph.D., now instructor in Romance languages and literatures, to be assistant professor of Romance languages and literatures.

The following assignments were made:

Faculty of Columbia College: For the term to expire June 30, 1915: Professor Bigongiari (Romance languages), vice Professor Farrand, resigned, and Professor Neish (chemistry); for the term to expire June 30, 1916: Professor Steeves (English); for the term to expire June 30, 1917: Professors Agger (economics), Beard (politics), Dunning (history), Fiske (mathematics), Fontaine (Romance languages), Jordan (Romance languages), Keyser (mathematics), McCrea (classical philology), McGregor (zoology), Mayer (engineering drafting), Meylan (physical education), H. B. Mitchell (mathematics), Sait (politics), Schuyler (history), Seligman (political economy), Shotwell (history), Alexander Smith (chemistry), Tassin (English), and Van Doren (English).

Faculty of Political Science: Professors Mitchell (economics) and Niemeyer (Kaiser Wilhelm professor).

Faculty of Law: Professors Gifford (law) and Niemeyer (Kaiser Wilhelm professor).

Faculty of Practical Arts: Assistant Professors Whitley (educational psychology), Broadhurst (biology), Keyes (physical education), Williams (physical education), Carpenter (chemistry), and Winchell (household arts education).

Faculty of Barnard College: Assistant Professors Hollingworth (psychology) and Muller (Romance languages).

The title of William H. McCastline was changed from health and sanitary officer to University medical officer.

The following appointments were made: Wesley C. Mitchell, Ph.D., professor of economics; Ralph W. Gifford, A.B., LL.B., professor of law; Theodor Niemeyer, professor of international law at the University of Kiel, Kaiser Wilhelm professor for the year 1914–15; Franklin Matthews, A.B., associate professor of journalism; Alden D. Stanton, assistant superintendent of buildings and grounds. Upon the nomination of the trustees of Teachers College—Foreign correspondents: Austria—Franz Skabérne of the Austrian Kultusministerium, Vienna; England and Wales—A. E. Twentyman, librarian of the Board of Education, Whitehall, London, S. W.; France—Jules Coulet, director of the Bureau of Information, the Sorbonne, Paris; Germany—Dr. Goetze, director of the Arndt Gymnasium, Berlin-Dahlem; Scotland—J. Clark, clerk to the School Board, Glasgow. Mary Theodora Whitley, assistant professor of educational psychology; Jean Broadhurst, assistant professor of biology; Harold Brown Keyes, M.D., assistant professor of physical education; Jesse Feiring Williams, assistant professor of physical education; Clifford D. Carpenter, assistant professor of chemistry; Cora Marguerite Winchell, assistant professor of household arts education. Upon the recommendation of the administrative board of extension teaching—Elsa Frame, domestic science; C. C. Hughes, bookkeeping; Isidore Wormser, commercial law; Henry Logan, stenography and typewriting; Annie E. Moore, education; G. Egloff and W. H. Ransom, chemistry.

The following appointments were confirmed: D. B. Keyes to be laboratory assistant in chemistry, *vice* Karl J. Holliday, resigned, from January 1 to June 30, 1914; John Ellis Evans to be assistant in psychology, *vice* Alfred E. Rejall, resigned, from February 1 to June 30, 1914.

Resolved, That, hereafter, in appointing persons not otherwise in the service of the University who are intended to take part in extension teaching (in accordance with the provisions of the statutes, section 232), the trustees will give, upon the recommendation of the administrative board of extension teaching and with the approval of the appropriate department, the titles of assistant professor, associate, instructor, assistant or lecturer, according as the training, experience and salaries of such persons may indicate.

April Meeting.—The thanks of the trustees were tendered:

To the anonymous donor of the sum of $2,500, to be credited to the anonymous fund for surgical research.

To the anonymous donor of the sum of $2,000; $1,000 of which is to be used for the equipment of the Maison Française, and $1,000 to be applied toward salaries in the department of philosophy.

To Alexander Smith Cochran of New York for his gift of $992.01, to meet the cost of publishing through the Columbia University Press a catalogue of Persian manuscripts in the Indo-Iranian Series.

To the Association of National Advertising Managers for their gift of $375 to cover the third installment of the stipend of the advertising research fellowship.

To the donors of the sum of $150, to be added to the French lecture fund.

To Jacob Ruppert of New York for his gift of yeast of an approximate value of $1,000 for use in the department of chemistry.

To the General Direction of the Royal Museums in Berlin for the gift of one hundred and twenty-six electrotype reproductions of coins and medals struck during the reign of Frederick the Great and now contained in the Royal Numismatic Institution in Berlin.

To the Class of 1889, School of Mines, for their gift of a bronze replica of the statue known as "The Hammerman," by Constantin Meunier, together with a suitable pedestal, in commemoration of the twenty-fifth anniversary of their graduation.

To the alumni of the College of Physicians and Surgeons for the gift of a bronze tablet in memory of Professor Hiss.

Pending the appointment of a librarian, and during the further pleasure of the trustees, the following officers of the University were designated to act as a library council, with the powers and duties conferred upon the librarian by the provisions of the Statures, Section 70: The President of the University and Professors Wheeler, Trent, Keyser, Shotwell, Simkhovitch, N. Abbott, Weeks and Harper.

The clerk reported a vacancy in the board and in the Committee on Honors caused by the death of the Rev. Dr. Coe.

Mr. Coudert was elected to the Committee on Honors to fill the unexpired term of the late Dr. Coe.

The clerk reported the receipt from the secretary of the National Academy of Design of the following resolution, adopted at a meeting of the Academy on March 11, 1914:

Resolved, That whereas circumstances have rendered impossible the development of the plans for a combined school of fine arts with Columbia University, the Academy recommends that the agreement for such a school be terminated on June 30, 1914, at the close of the present academic year by mutual consent of both parties.

The following resolution was then passed by the trustees:

Resolved, That the trustees of the University concur with the recommendation of the National Academy of Design, and that the agreement between the Academy and the University, dated February 5, 1906, be terminated by mutual consent on June 30, 1914.

The budget for 1914–15, as adopted March 2, 1914, was amended by certain rearrangements in the departments of English, history and business administration.

Leaves of absence were granted as follows: to Henry S. Munroe, Ph.D., Sc.D., professor of mining, from February 15 to the end of the academic year; to William F. Cooley, Ph.D., instructor in philosophy, for the academic year 1914-15.

Changes of title were made as follows: William Heard Kilpatrick, Ph.D., now assistant professor of the history of education, to be assistant professor of education; Willystine Goodsell, Ph.D., now assistant professor of the history of education, to be assistant professor of education, with a seat in the faculty of practical arts; Milo B. Hillegas, Ph.D., now assistant professor of elementary education, to be assistant professor of education.

Willystine Goodsell, Ph.D., assistant professor of education, was assigned to a seat in the faculty of practical arts.

The appointment of J. K. Marcus to be laboratory assistant in chemistry from March 1 to June 30, 1914, *vice* Simon Birnbaum, resigned, was confirmed.

The following appointments were made: Upon the nomination of the faculty of medicine—Ellsworth Eliot, M.D., to be professor of clinical surgery at the Presbyterian Hospital; Alexis Victor Moschcowitz, M.D., to be professor of clinical surgery at Mount Sinai Hospital. Upon the nomination of Barnard College—Emily James Putnam, A.B., associate in history; Esther Everett Lape, A.B., instructor in English; Ethel Sturtevant, A.B., lecturer in English; Estelle H. Davis, lecturer in English; Carolyn Sheldon, A.B., assistant in history; Phebe Hoffman, A.M., assistant in history; Una Bernard Sait, A.M., assistant in philosophy; Arthur W. MacMahon, A.B., instructor in politics; Florence de Loiselle Lowther, A.B., assistant in zoology.

Leo H. Baekeland, Sc.D., was appointed lecturer upon the Charles Frederick Chandler foundation for 1913-14.

May meeting.—The thanks of the trustees were tendered:

To Mr. Homer E. Sargent for his gift of $500 to be applied to the cost of the editorial work of the department of anthropology.

To the anonymous donor of the sum of $3,000 to establish and endow the Nicholas Murray Butler Medal of Columbia University in Columbia University.

The offer of the executors of the Estate of Joseph Pulitzer to place the statue of Thomas Jefferson, executed by William Ordway Partridge, on the terrace in front of the School of Journalism was accepted.

The following award of the William Bayard Cutting travelling fellowships for the year beginning July 1, 1914, was made: Columbia College: Walter Broad Veazie, A.B., classical philology; Graduate Faculties: Robert Eugene Cushman, A.B., public law; John De Lancey Ferguson, A.B., A.M., English; Louis Otto Kunkel, B.S., A.B., A.M., botany; Rowland Robbins McElvare, A.B., economics; Clarence Augustus Manning, A.B., A.M., classical philology; Chilton Latham Powell, A.B., A.M., English; Alfred Henry Sturtevant, A.B., zoology.

Mr. Dodge was elected to membership in the committee on education, *vice* Dr. Cheesman, resigned.

Mr. Hoffman was elected to membership in the committee on buildings and grounds, *vice* Dr. Cheesman, resigned.

Clinton Mindil Pang, of the Class of 1914, was awarded the William Mitchell fellowship for the year 1914-15.

The budget, as adopted March 3, 1913, was amended by certain rearrangements in appropriations in the departments of Germanic languages, journalism and pathology and extension teaching.

The budget, as adopted March 2, 1914, was amended by certain rearrangements in appropriations in the departments of English, public law and Romance languages and in the Crocker Fund and the library.

The following resignations were accepted: Frank J. Goodnow, LL.D., Eaton professor of public law and municipal science; Theodore C. Janeway, M.D., Bard professor of the practice of medicine; J. Ramsay Hunt, M.D., associate professor of neurology and chief of clinic in the department of neurology; Frederick Peterson, M.D., professor of psychiatry; Alden Stanton, assistant superintendent of buildings and grounds; William A. Dunning, LL.D., Lieber professor of history and political philosophy, from the faculty of Columbia College; Thomas S. Fiske, Ph.D., professor of mathematics, from the faculty of Columbia College.

The following appointments were made: Howard L. McBain, Ph.D., to be associate professor of municipal science and administration; Ellery C. Stowell, A.B., Docteur en Droit, to be assistant professor of international law; Frank A. Patterson, Ph.D., to be assistant professor of English; Robert H. Montgomery to be assistant professor of economics; James P. C. Southall, M.A., to be assistant professor of physics.

The following Administrative Board of the school of architecture was appointed for three years from July 1, 1914, provided the persons named continue in the service of the University: Professors Austin W. Lord, A. D. F. Hamlin, Frank Dempster Sherman, Charles P. Warren, and Charles A. Harriman, together with the provost and the secretary of the University.

Thomas Cuming Hall, D.D., professor of ethics in the Union Theological Seminary and a member of the faculty of philosophy in Columbia University, to be Theodore Roosevelt Professor in the year 1915–16.

Upon the nomination of the administration board of the school of journalism: Edwin E. Slosson, associate in journalism.

Upon the recommendation of the board of managers of the George Crocker Special Research Fund: associate in cancer research, F. D. Bullock; associate in serology, L. W. Famulener; associates in cancer research, Isaac Levin, G. L. Rohdenburg, Frederick Prime, Jr., Charles H. Bailey.

Upon the recommendation of the medical faculty: Frederick Tilney, Ph.D., M.D., to be associate professor of neurology.

The appointments were confirmed of Rev. Father Cornelius Clifford to be lecturer in philosophy; Henry Slonimsky, Ph.D., to be lecturer in philosophy, *vice* W. F. Cooley, instructor, absent on leave.

The following assignments were made: David S. Muzzey, Ph.D., associate professor of history, to a seat in the faculty of political science; Robert L. Schuyler, Ph.D., assistant professor of history, to a seat in the faculty of political science; Edward M. Sait, Ph.D., assistant professor of politics, to a seat in the faculty of political science; Walter I. Slichter, E.E., professor of electrical engineering, to a seat in the faculty of pure science.

UNIVERSITY COUNCIL

February meeting.—1. *Resolved,* that that paragraph on page 191 of the University catalogue for 1913–14 beginning, "With the approval of the appropriate departments," be amended to read as follows:

With the approval of the appropriate departments the Dean may credit work done at another institution, the courses to which such work is deemed equivalent being entered in the curriculum as "completed elsewhere," but at least five full courses of graduate rank must always be taken at Columbia University. This provision, however, shall not operate to reduce the requirement of one year's residence in this University, but will permit a student to discharge this requirement by electing outside his curriculum such courses as may be approved by the department in charge.

2. *Resolved,* that the academic calendar be amended so that the dates for the January entrance examinations be placed three days later than those assigned, viz., January 14, instead of January 11, for 1915; and January 13, instead of January 10, for 1916.

3. *Resolved,* that the Council concur in the recommendation of the faculty of political science to rearrange the subjects in Group 2, entitled "Politics, public law and comparative jurisprudence," so that constitutional law and administrative law shall constitute one subject to be designated "Constitutional and administrative law"; and the non-legal topics shall be grouped together under one subject to be designated "Politics."

4. On certain recommendations of the Association of American Universities with regard to the award of fellowships and scholarships action was taken as follows:

Resolved, That the date of filing applications for graduate scholarships after January 1, 1915, be made March 1 of every year.

That a provisional selection of fellows and scholars be made as nearly as possible simultaneously (say) about the first of April in each year.

That the results of such selection be communicated at once to every member of the Association of American Universities.

That no person be asked to accept any such appointment and no formal election to such positions be made until a sufficient time shall have elapsed for communication among all the universities concerned (say) April 15.

5. The secretary reported for record that fifty-five candidates for the degree of Master of Arts and twelve for the degree of Doctor of Philosophy had completed the requirements for the degrees sought and were entitled to receive diplomas.

6. The following resolution, adopted by the School of Architecture, was recorded:

Resolved, that beginning with the year 1914–15 the class of students known as "non-matriculate" be no longer admitted to the School.

April meeting.—The executive committee submitted a printed report on fellowships for the academic year 1914–15, and the candidates there named were appointed.

The following additional appointment was made: John Tyndall fellowship—Winthrop Robins Wright, Benton Harbor, Mich., A.B., University of Michigan, 1909; A.M., 1912; Columbia University, graduate student, 1912–13; Tyndall Fellow, 1913–14.

Resolved, that the approval of graduate courses under the faculties of political science, philosophy, and pure science be referred to the chairmen of the committees on instruction of the three graduate faculties with power.

Resolved, that the rules for the award of the travelling fellowships in architecture, viz., the Columbia fellowship, the McKim fellowship and the Perkins fellowship, referred for revision to the executive committee with power, be amended to provide that they be opened to such matriculated students as have completed all the requirements for graduation with the exception of the thesis.

Resolved, that a list of Japanese institutions, submitted on behalf of the University of California, which was requested at the last annual meeting of the Association of American Universities to prepare a classification of universities and colleges in Japan for the purpose of establishing a uniform rating of Japanese students applying for admission to the graduate schools within the Association, be accepted as an approved list, subject to such revision as it may be considered expedient to make.

UNIVERSITY FELLOWSHIPS

April meeting.—The following fellowships for the academic year 1914–15 were awarded:

George Boas, philosophy, New York City, A.B. and A.M., Brown University, 1913; Harvard University, candidate for A.M., 1914.

Calvin Blackman Bridges, zoology, New York City; B.S., Columbia University, 1912; University scholar in zoology, 1913–14.

Paul Frederick Brissenden, economics, Berkeley, Cal.; A.B., University of Denver, 1908; M.L., University of California, 1912.

Wallace Everett Caldwell, ancient history, Brooklyn, N. Y.; A.B. Cornell University, 1910: Columbia University, graduate student, 1912–13.

Clifford Harrison Farr, botany, Iowa City, Iowa; A.B., State University of Iowa, 1911; M.S., 1912.

Frank Gavin, Semitic languages, Cincinnati, Ohio; A.B., University of Cincinnati, 1912; Columbia University, graduate student, 1913–14.

Julius Goebel, international law, Urbana, Ill.; A.B., University of Illinois, 1912; A.M., 1913.

Walter James Graham, English, Topsham, Me.; A.B., Bates College, 1911; A.M., Columbia University, 1912.

Herman Karl Haeberlin, anthropology, Düsseldorf, Germany; A.B. equivalent, Universities of Heidelberg, Leipzig and Berlin, graduate student, 1910–14.

Percy Withers Punnett, chemistry, Rochester, N. Y.; B.S., University of Rochester, 1911; A.M., Columbia University, 1912; graduate student, 1913–14.

Joseph Fels Ritt, mathematics, Washington, D. C.; A.B., George Washington University, 1913; Columbia University, graduate student, 1913–14.

Russell Gordon Smith, sociology, Richmond, Va.; A.B., Richmond College, 1911; Columbia University, graduate student, 1913–14.

ALTERNATES

Faculty of Political Science.

Charles Roland Hugins, economics, Ithaca, N. Y.; A.B., Cornell University, 1911; graduate student, 1912–14.

Spencer Miller, Jr., public law, South Orange, N. J.; A.B., Amherst College, 1912; Columbia University Law School, 1912–13.

Park Carpenter, American history, Northfield, Minn.; A.B., Carleton College, 1913; Dartmouth College, candidate for A.M., 1913–14.

Morris Wolf, history of thought and culture, Philadelphia, Pa.; A.B., Columbia University, 1912; graduate student, 1913–14.

Faculty of Philosophy.

Louis Leon Thurstone, psychology, Jamestown, N. Y.; M.E., Cornell University, 1912.

Rufus Emory Holloway, English, Austin, Texas; A.B., Hendrix College, 1906; A.M., University of Texas, 1912; Columbia University, University scholar in English, 1913–14.

Shigeo Kojima, philosophy, Tokyo, Japan; A.B., St. Paul's College, 1912; A.M., Columbia University, 1913; graduate student, 1913–14.

Angelo Lipari, Romance languages and literatures, New York City; A.B., Columbia University, 1911; A.M., 1912.

Faculty of Pure Science.

Edwin Thomas Hodge, geology, Minneapolis, Minn.; A.B., University of Minnesota, 1913; candidate for A.M., 1914.

Arthur Percival Tanberg, chemistry, Wilmington, Del.; A.B., Swarthmore College, 1910; A.M., 1913.

Roy Kegerreis, physics, Bellevue, Ohio; M.E., Ohio State University, 1911.

Hubert Baker Goodrich, zoology, Auburndale, Mass.; B.S., Amherst College, 1909; Columbia University, graduate student, 1911–14.

ENDOWED FELLOWSHIPS

Drisler Fellowship.

Clarence Augustus Manning, New York City; A.B., Columbia University, 1912; A.M., 1913; Drisler Fellow, 1913–14.

Alternate.

Frank Michael Debatim, St. Louis, Mo.; A.B., Washington University, 1912; A.M., 1913; University scholar in classical philology, 1913–14.

Garth Fellowship.

Robert James McFall, Berwick, Nova Scotia; A.B., Geneva College, 1912; Glasgow University, Scotland, graduate student, 1912–13; Columbia University, University scholar in economics, 1913–14.

Gilder Fellowship.

Parker LeRoy Moon, Yonkers, N. Y.; B.S., Columbia University, 1913; William Mitchell Fellow, 1913–14.

Fred William Eckert, Chicago, Ill.; B.S., Northwestern University, 1913; Fellow in economics, 1913–14.

Frank Alexander Ross, North Woodbury, Conn.; Ph.B., Yale University, 1908; A.M., Columbia University, 1913; Gilder Fellow, 1913–14.

Samuel Anthony Goldschmidt Fellowship.

Clive Morris Alexander, Leon, Iowa; B.S. in Chem., State University of Iowa, 1911; M.S., 1913; Columbia University, graduate student, 1913–14.

Mosenthal Fellowship.

Meyer Silver, New York City; Gymnasium, Pinsk, Russia; Columbia University, graduate student in music, 1911–14.

Schiff Fellowship.

Harold Warren Crandall, New York

City; A.B., Columbia University, 1913; graduate student, 1913–14.

Carl Schurz Fellowship.
Otto Emil Plath, Brush Prairie, Wash.; A.B., Northwestern College, 1910; A.M., University of Washington, 1912.

Alternate.
Lambert Armour Shears, New York City; A.B., Columbia University, 1912; graduate student, 1912–14.

William Petit Trowbridge Fellowship.
Henry Wolfgang Elsasser, New York City; B.S., Columbia University, 1912; candidate for E.E., 1914.

William Mitchell Fellowship.
Clinton Mindil Pang, Brooklyn, N. Y.; Columbia University, candidate for A.B., 1914.

Ernest Kempton Adams Research Fellowship.

S. Alfred Mitchell, Charlottesville, Va.; A.M., Queen's College, Kingston, Canada, 1894; Ph.D., Johns Hopkins University, 1898; Columbia University, tutor in astronomy, 1899–1906; instructor, 1906–1908; adjunct professor, 1908–1910; assistant professor, 1910–1913; professor of astronomy and director of the Leander McCormick Observatory, University of Virginia, 1913–1914.

ALUMNI RECORD

Notwithstanding the fact that the coldest February 12 in thirty-three years greeted alumni on their return to Morningside for the celebration of the sixth annual Alumni Day, the programme this year was the most successful ever held. During the morning hours the alumni visited laboratories and class rooms where their old professors held sway and it was not until luncheon that groups began to form. Special accommodations were provided by the various fraternities, the Phi Beta Kappa Society, and the Faculty Club. John Erskine, '00, president of the Columbia Chapter of Phi Beta Kappa, presided over the annual luncheon of the Society and over the business session which followed. Exhibitions were held in the Library where recent publications of alumni, students, and officers of the University were on view, and in Avery Hall where the attraction was the famous Meunier collection of paintings and sculpture.

An important event of the 1914 Alumni Day was the first meeting of the Alumni Federation which was held in Earl Hall at 2:00 p. m. President Van Amringe called to order a gathering which was more largely attended than any of the alumni conferences of former years, which conferences the meetings of the Federation will supersede. President Nicholas Murray Butler delivered the address of welcome to the alumni and President Van Amringe introduced Benjamin B. Lawrence, '78 S, who reminded the alumni of the celebration of the fiftieth anniversary of the founding of the School of Mines. George B. Compton, '09, '13 L, executive secretary, made his report upon the progress of the Federation to date, and Gustavus T. Kirby, '95 S, treasurer, reported the condition of finances of the organization and emphasized the necessity for all alumni to support the movement in the formative stages. Addresses were made by Willard V. King, '89, trustee of the University, on the meaning of the Federation for the University, and by Albert W. Putnam, '97, '00 L, a representative of the Law School Association on the old Alumni Council and one of the organizers of the Federation, on the meaning of the Federation for the alumni. These addresses which were designed to invite discussion from the floor were followed by remarks by Charles M. Lum, '81, Professor W. I. Slichter, '96 S, Gustavus T. Kirby, '95 S, '98 L, William Foster, '81, and Dr. Walter Mendelson, '79 M, all of whom outlined what they believed could be accomplished among the alumni by the Federation. At this point, on behalf of the Alumni Association of the College of Physicians and Surgeons, Dr. J. Arthur Booth, '78, '82 M, presented to Dr. Walter Mendelson, '79 M, a loving cup as an evidence of the Association's appreciation of the work he has done for them as well as of their high regard and esteem. Ambrose D. Henry, '84, chairman of the committee of Fifteen alumni, appointed by the 1913 alumni conference to present a plan for the nomination of alumni trustees, proposed the following resolution:

Resolved, That the Committee of Fifteen be discharged and that the question of method for the annual nomination of alumni trustees be referred to the Board of Directors of the Federation with instructions to evolve a plan, first, acceptable to the Board of Trustees, second, with a sufficient safeguard to insure the selection of a nominee in every way worthy, and, third, with a suffrage as large as is consistent with sound finance.

After discussion Mr. Henry's resolution was amended by striking out the third clause and was passed as amended.

The stunts performance in the Gymnasium followed the meeting of the Federation and a crowd which packed every available point of vantage was kept in an uproar by antics of 1912, 1905, 1910, 1911, and 1913 P. and S.; the latter being the first class of a professional school ever represented in the stunts. 1910, with a street scene in New York, won first prize, and the embryo doctors carried off second prize. At 4:15 p. m. an organ recital was given by Professor Walter Henry Hall in St. Paul's Chapel and the alumni divided their attention between this musical offering and athletic practices which were held by the crew, by the fencing team, and by the track team. The alumni assembled in a body in front of University Hall at 5:30 and, headed by the drum corps of the Early Eighties, marched to Furnald Hall where the students had arranged a reception. Addresses by Dean Van Amringe, James Duane Livingston, '80, for the alumni, and Milheiser and Ruble for the students, featured this part of the programme. The attendance at the beefsteak dinner was smaller than usual because of the cold weather. Dr. J. Arthur Booth, '78, presided, and addresses were made by Sayre, '81, Pine, '77, Henry, '84, and Osterhout, '10, '12 L. An attractive part of the dinner was singing by the Glee Club and music by an orchestra. At the conclusion of the speeches the alumni, again led by the undaunted drum corps, marched to the sections reserved for them at the basketball game. According to the usual custom of Alumni Day Columbia was victorious over the University of Pennsylvania, this year's victory being won by a score of 23–11.

On June 14 the fifth reunion of the Older Graduates was held at the University Club. At the business meeting Pierre de P. Ricketts, '71 S, Robert C. Cornell, '74, and W. de L. Benedict, '74 S, were elected respectively president, vice president, and secretary-treasurer. President Ricketts was toastmaster, and the guests were Dr. Charles F. Chandler, Dean Van Amringe, '60, Francis E. Ward, '81 S, Charles H. Mapes, '85, and Edgar J. Moeller, '95 F. A., presidents respectively of the Early Eighties, Upper Eighties, and Last of the Forty-Niners, Girard Romaine, '82, E. L. Dodge, '88, and Frank S. Hackett, '99, secretaries of the societies, Ambrose D. Henry, '84, president of the College Alumni Association, George B. Compton, '09, secretary of the Alumni Federation, Robert Arrowsmith, '82, of the New Jersey Alumni Club, and Dr. S. A. Goldschmidt, '71 S. Over fifty members attended the meeting.

The thirtieth annual dinner of the Class of 1888, Arts and Mines, was held at the Columbia University Club on January 15. Presidents Young and Taylor alternated as presiding officers. William R. Powell, the perpetual treasurer and secretary of the Class, was presented by Harry Harper with a beautifully decorated faience ewer. Songs were sung by Baldwin and Poole and all present joined in the rendition of Columbia melodies under the leadership of Harry Bennet.

The midwinter reunion of the Class of '92, Arts and Mines, was held at the Chemists Club, 50 East Forty-first Street, New York, on January 20. Thirty members of the Class attended and an excellent menu and an illustrated talk by Langthorn of the work on the new Catskill water system now under construction for the City of New York were the features.

The sixth annual meeting of the Association of the Alumni of the College of Physicians and Surgeons was held at the College on January 26. Walter Mendelson, '79 M, president, read his report for the year 1913. The following officers were elected: president, Walter Mendelson, '79 M, vice president, Charles H. Peck, '92 M, secretary, Henry E. Hale, '96 M, assistant secretary, William R. Williams, '95 M, trustee to serve six years, William H. McCastline, '03 M, delegate to the directorate of the Alumni Federation to serve three years, George G. Cochran, '84 M. At the close of the business session and under the auspices of the department of anatomy illustrated papers were read by John E. McWhorter, '98 M, A. G. Brown, '03 M, Frederick Tilney, '12 Ph.D., O. S. Strong, '95 Ph.D., and F. B. St. John, '09 M. At the conclusion of the programme refreshments were served in the students' reading room to members and guests.

On January 28 at the Buffalo Club, Buffalo, New York, a large and enthusiastic meeting of the alumni of Western New York was held. The guests of the Club were Dean Frederick P. Keppel, '98, who talked on the University as it is today, and George B. Compton, '09, '13 L, executive secretary of the Federation, who outlined the organization of that body. The executive committee recommended that the Association change its name to the Alumni Club of Buffalo and by action of the members present the new name was adopted. President T. F. Cook, '04 S, described in detail the activities of the past year which included entertainment of an International Students Congress, a high school cross country run, an oratorical contest, and the raising of a scholarship fund. Election of officers for the year 1914 resulted as follows: president, W. J. Donovan, '05, '08 L, vice president, P. R. Welch, '05 L, secretary-treasurer, A. H. Hopkins, '08 F. A., executive committee, Thomas F. Cook, '04 S, C. C. Farnham, '89 L, and the officers. One of the most interesting numbers of the program was the reading of letters from Murphy, '15, G. R. Stearns, '13, '15 L, G. R. Webb, '14, J. W. Danahy, '17 J, and Spencer C. Williams, '17, members of the Buffalo Club recently organized at the University.

A meeting of the Alumni Association of the School of Architecture was called for January 27 at the Columbia University Club. Despite the fact that the members present did not constitute a quorum and, therefore, a formal meeting could not be held, those present engaged in a thorough discussion of association and general alumni plans.

In recognition of the completion of thirty-two years in service as a trustee of the University by George L. Rives, '68, '73 L, and of eleven years of service as chairman of the Board, President Butler invited trustees and former trustees of the University to meet Mr. Rives at dinner at the President's House on February 7. The Rev. Dr. Coe, General Carpentier, Rev. Dr. Manning, Mr. Sloane, F. Augustus Schermerhorn, '67, and Rev. Dr. Marvin R. Vincent, '54, were the only absentees. Members of the faculty present were Professor William M. Sloane, '68, classmate of Mr. Rives in Columbia College, Professor Brander Matthews, '71, a classmate of Mr. Rives in the Law School, Professor Munroe Smith, '77 L, Edwin R. A. Seligman, '79, Edward Delevan Perry, '75, Provost William H. Carpenter, and Dean F. J. E. Woodbridge.

At the seventh annual meeting of the Philadelphia Alumni Association, now the Columbia Alumni Club of Philadelphia, held on January 29, the model constitution suggested by the Board of Directors of the Federation was adopted with minor changes. Officers for the year 1914 were elected as follows: president, Dr. Henry Kraemer, '95 S, first vice president, W. H. Lawton, '85, second vice president, Carl G. A. Schmidt, '01 S, treasurer, S. D. Benoliel, '96 S, secretary, H. F. Sanville, '92 S. Lemuel Whitaker, '81, by a unanimous vote, was elected a life member of the executive committee.

About twenty members of the Columbia Alumni Club of Minnesota were present at its annual dinner and business meeting at the Town and Country Club in St. Paul on January 31. Dr. William Dawson Johnston, who resigned as librarian at Columbia to become head of the library system of St. Paul, was guest of honor. The action of the executive committee in approving the Federation plan of organization was approved and the Association became, therefore, the Alumni Club of Minnesota, pending the adoption of the model constitution suggested by the Board of Directors of the Federation. Officers elected for the year 1914 are: Charles N. Dohs, '94 L, president, A. J. Murdock, '70 M, first vice president, George B. Edgerton, '81 L, second vice president, Rae T. La Vake, '09 M, secretary-treasurer.

The annual midwinter dinner of the Class of 1902 was held on January 20 in the club rooms of the new Craftsman Building in East Thirty-ninth Street. About forty members of the Class were present.

Georges Renault, '83 S, was guest of honor at a dinner in the council room of the University Club on the evening of February 2. The affair was arranged by members of the Early Eighties who have been most closely associated with him in society and general alumni activities. Those present besides Mr. Renault were Dean Van Amringe, '60, Livingston, Morgan, and Tonnelé, '80; Demorest, Sayre, Ward, and Sawyer, '81; Arrowsmith, Butler, Going, Hepburn, Romaine, and Wiley, '82; Barnes, Foster, Hazen, '83; and Henry, Jenkins, and Reade, '84. Brereton, '83, Walker, '83, and Moran, '84, were prevented from attending because of absence from the city. Francis E. Ward, president of the Early Eighties, was toastmaster. Poet laureate Going read and presented to the guest a copy of a poem which was written specially for the occasion. After the singing of "Here's to you, Georges Renault" the guest of honor was called upon for a speech, and for the first time on record answered the call. He was then presented with the gold badge of the Early Eighties. Nearly everyone present took part in a series of short and informal tributes to the guest of honor.

The second annual dinner of the Society of the Last of the Forty-Niners was held at Reisenweber's on February 16. President Moeller, '95 F. A., directed the proceedings. The following guests responded to toasts: Ambrose D. Henry, '84, for the College Alumni Association, Romaine, '82, for the Early Eighties, Arrowsmith, '82, Dodge, '88, Mapes, '85, for the Upper Eighties, Compton, '09, for the Federation. Special side lights on the history and purposes of the Last of the Forty-Niners were offered by Gould, '96. Giddings, '00, in behalf of his Class, which had just been included in the eligible list for membership in the Society, and Frederick Coykendall, '95, the newly elected president, also made addresses. A resolution which received hearty endorsement by all present was passed in order to perfect with the aid of sister classes of the Last of the Forty-Niners the organization of '96, '97, and '98. A prize was awarded to '00 for having present the best representation.

The forty-fourth annual dinner of the Class of '74 of Columbia College was held at the University Club on February 11. Messrs. Aldrich, Allerton, Buckley, Butterworth, Cheesman, Cornell, Harrower, Hinrichs, Kobbé, Loder, Sands, Scudder, Shaw, and Van Amringe were present. All members present took part in a discussion of various problems with which the University is confronted. The feature of the dinner was the presentation by Hinrichs to Frank Dunlap Shaw of a silver loving cup in recognition of his services as permanent secretary of the Class.

About fifty members of the Class of 1913 Law attended the first reunion since the graduation dinner. It was held at the Lawyers Club, New York, on December 10 and President Veness was chairman. Reports were received from Chairman Ruch of the Reunion Committee and Chairman Huser of the Class Gift Committee. Professor Charles T. Terry, '93 L, and Professor J. E. Reynolds, '99 L, responded to toasts.

The annual dinner of the Class of '79 Mines was held at the Chemists Club, New York, on February 11. The guests of the evening were Professors Chandler and Munroe, Ricketts, '71 S, Waller, '70 S, and Elliott, '81 S. About twenty members attended.

An informal dinner and meeting of the Alumni Club of Northern New York was held on February 4 at the Hampton Hotel, Albany. About twenty members of the Club were present including James Duane Livingston, '80, Professor Slichter, '96 S, the first president of the Club, and Compton, '09, secretary of the Federation and editor of the News. Livingston, Slichter, and Compton all responded to the calls of the toastmaster, Rev. Roelif H. Brooks, '00. After adjournment the Club in a body went to the University Club to pay its respects to Dr. John H. Finley, the newly elected president of the University of the State of New York and Commissioner of Education, in whose honor a reception at that time was in progress. The diners included a number of out of town alumni.

One of the most significant meetings of the alumni and one which illustrates the work the Federation can accomplish and is accomplishing was held in Tokio, Japan, on December 20. Twenty-two members of the recently organized Columbia Club in Tokio met at the Imperial Hotel on that date. The Club has a membership of sixty, about two-thirds of whom live in the capital of Japan. Its year's activity included an entertainment of Professor Paul Munroe of Teachers College at the Koishikawa Botanical Gardens.

The most successful reunion which has been held by the Class of 1908 was held at the Kaiserhof Restaurant, New York, on March 2. Forty men were present. After the dinner which crowned the efforts of an efficient committee composed of Byrne, Kendall, Murphy, Rindge, and Rouse, the Class attended a performance of "The Midnight Girl" where a block of seats had been reserved.

About fifty members of the Decennial Class met at Keen's Chop House for dinner on March 12. Professor Knapp, Chairman of the University Committee on Public Ceremonies, was guest of honor. R. W. Carleton presided and the most important topic for discussion was the decennial reunion, plans for which were outlined by George F. Miles, chairman of the committee on entertainment.

On March 13 the Class of 1889 held a dinner at the Columbia University Club at which the special feature was a discussion of plans for a celebration of the twenty-fifth anniversary of the graduation of the Class at Commencement.

Alumni in the vicinity of Baltimore held a meeting on April 3 to discuss the organization of an Alumni Club and to arrange for a banquet for Director Talcott Williams and a suitable welcome for Professor Frank J. Goodnow, '82 L, when he is inaugurated as president of Johns Hopkins University. About fifteen alumni attended including Rev. John S. B. Hodges, '50, Henry Whiting, '66, '71 S, N. Winslow Williams, '83 L, and Rev. Charles A. Rubenstein, '98 A. M. In accordance with the plans made at this meeting a dinner was held on April 25 at which Director Talcott Williams of the School of Journalism and George Brokaw Compton, '09, secretary of the Federation, were guests.

The Alumni Club of San Francisco entertained Dean Frederick A. Goetze at an informal luncheon at the University Club on March 17. About fifteen members were present.

The regular annual business meeting of the Alumni Association of the Law School was held on March 16. The constitution of the Association was amended to provide for a class of life members, the fee determined upon being $50.00. Several such members have already been obtained. A committee was appointed to consider the advisability of arranging a dinner to be held next fall for which invitations are to be sent to all alumni of the Law School. Officers for 1914 were elected and include president, George L. Ingraham, '69 L, first vice president, William B. Hornblower, '75 L, second vice president, Francis L. Stetson, '69 L, third vice president, B. A. Sands, '74, '76 L, secretary, Lawrason Riggs, '03, '06 L, and Stephen P. Nash, '01, '03 L, treasurer.

Chief Judge Cullen was a guest of honor at the annual dinner of the Dwight Alumni Association at the Hotel Astor on March 19. William D. Guthrie, president, was chairman, and among the speakers were Chief Judge Cullen, '60, Mr. Wickersham, president of the New York Bar Association, Mr. McDermott, president of the Brooklyn Bar Association, Mr. Marshall, attorney for the United States in this district, Professor Chase, and Judge Ranson.

About thirty members attended the annual dinner of the Alumni Club of the District of Columbia at the Cosmos Club in Washington on March 1. The toastmaster was President Marcus Benjamin, '78 S, and the speakers of the evening were Professor John B. Moore, United States

Senator, George Sutherland, '13 Hon., Hon. Oscar W. Underwood, '12 Hon., Hon. Thomas Ewing, '85, commissioner of patents, Dr. W. C. Braisted, '86 M, surgeon general of the United States Navy, E. M. Borchard, '08 L, Library of Congress, George O. Totten, Jr., '91 F. A., secretary of the Club, and N. Otis Rockwood, '10, '12 L.

At the nineteenth annual meeting of the Alumni Association of Columbia University in Colorado held on March 7 at Denver the Association became a part of the Alumni Federation by forming the Alumni Club of Colorado. One of the objects of this meeting was to welcome Professor Livingston Farrand, '91 M, who left Columbia to become president of the University of Colorado. William L. Dayton, '89 L, was toastmaster. Officers for the ensuing year were elected as follows: president, Cyrus H. Pershing, '08 M, vice president, Robert S. Gast, '05 L, secretary-treasurer, John E. Fetzer, '08 L. About thirty members were present.

Alumni in the vicinity of Los Angeles, California, gave a dinner to Dean Frederick A. Goetze at the University Club on March 14. After the dinner the plans of the Alumni Federation were outlined by the Dean who suggested the formation of an Alumni Club for southern California. A temporary chairman was immediately chosen and the Alumni Club of Los Angeles was forthwith formed. James H. Seymour, '83 M, was chosen president, William F. Staunton, '80 S, first vice president, Paul H. Harwood, '03 S, second vice president, and Paul J. Pitner, '05 S. secretary-treasurer.

Dean Frederick A. Goetze was entertained in Portland on March 20 by a group of alumni living in the state of Oregon. At a meeting at the Oregon Hotel on that date it was decided to organize a Club under the Federation plan. Consequently a constitution along the lines suggested by the Board of Directors of the Federation was adopted and the Oregon Club of Columbia University in New York was formed.

The Class of '90 Arts and Mines held its twenty-fourth annual dinner at the Columbia University Club on March 27. The guests of honor were Deans Van Amringe and Chandler who entertained with reminiscences. Parker related experiences on Mount McKinley and the memorial committee reported that the amount necessary for the erection of one of the pylons to face Broadway was nearly all subscribed. About twenty-five members were present.

At a dinner of the Class of '81 held at the Columbia University Club on March 25 a resolution was passed to contribute $100 to the Endowment Fund of the Alumni Federation. Thirty-one members of the Class were present, some of whom had not attended a class dinner since graduation. Regrets were received from about a dozen members who were unable to be present because of sickness or absence from the city. One of the features of this dinner was the singing of songs of undergraduate days, a collection of which had been made by Arrowsmith for the occasion. Rambaut related some of his famous Professor Short stories. A special toast was drunk to the memory of Harry Thurston Peck, a member of the Class, who died a few days previous to the reunion.

While returning from the Pacific coast Dean Goetze attended meetings of the Alumni Club of the State of Washington at Seattle, of the Alumni Club of Utah at Salt Lake City on March 27, and of the Alumni Club of Nebraska at Omaha on April 1. Because of the delay en route the Dean was unable to attend a meeting scheduled for the Alumni Club of Montana at Butte on March 23. The Alumni Club of Utah and the Alumni Club of Nebraska were formed at these meetings. There had been an informal organization in Nebraska heretofore and the Alumni Club superseded it. The Utah Association ratified the new constitution whereby the old organization becomes the new Columbia Alumni Club of Utah. At Seattle the Dean was a guest of the faculty of the University of Washington at luncheon. About twenty members of the Club were present at the dinner in Salt Lake City. The organization meeting of the Alumni Club of Nebraska which was held at the University Club in Omaha proved to be a most delightful occasion.

A reunion of the Class of '12 S was

held on February 12 at Healy's Restaurant, New York. It was decided to hold a dinner annually as the large attendance at the meeting led all the members to believe that the success of this year's event could easily be repeated.

The original resolution of the Board of Trustees of the University providing for the election of an alumni trustee was amended on March 2, 1914, at the suggestion of the Board of Directors of the Federation By the terms of the resolution as amended each Alumni Association and Alumni Club within the Federation having ten or more members who are graduates of any of the schools maintained by the Trustees may be represented in the nominating convention. This amendment of the resolution, while it does not materially affect the method of procedure for balloting for an alumni representative on the Board, is an official recognition by the Board of the Alumni Federation. One of the most far reaching effects of the new provision is that membership of only ten degree-holding alumni is necessary for representation in the nominating convention. Under the original resolution a membership of twenty-five was required.

The time and place of meeting of the Convention to nominate the Fifth Alumni Trustee was set for the Trustees' Room on the campus at 4:00 p. m., on May 27.

LEVERING TYSON, '11 A. M.

NECROLOGY

Harry Thurston Peck

Harry Thurston Peck, A.B., 1881, L.H.D., 1884, LL.D., 1904, died at Stamford, Connecticut, on March 23, 1914, in his 58th year. Both at school and in college he gave ample evidence of that love of letters and command of the technique of prose and verse for which he was subsequently distinguished. After graduation he held a university fellowship in classical philology, was made tutor in Latin, and, upon the death of Professor Short, was presently, in 1888, appointed professor of the Latin Language and Literature. At the sesqui-centennial celebration of 1904 he became the incumbent of the Anthon chair, which he held until 1910.

He was at all times an omnivorous reader, and formed his opinions about the content of his reading with swiftness. His memory, besides, was very retentive, and, as he was an untiring worker, his ready control of facts and ideas drawn from widely separated fields of knowledge was most striking. Yet he was always original, and loved best to couch a lance against received opinions. His intimate knowledge of French literature helped to make his own style clear and trenchant, and no quality in his writing is more noticeable than the exquisite felicity of the phrasing.

His literary work was, naturally, very varied. His editorship of the Bookman from 1895 to 1907 won him admirers throughout the whole country. He was the editor, also, of the New International Encyclopaedia, and of Harper's Classical Dictionary. The essay form is represented by the two volumes entitled, *The Personal Equation* and *What is Good English and Other Essays;* poetry by *Greystone and Porphyry;* all three published in 1899. His keen observation of the serious and humorous aspects of our political life in America took shape, in 1906, in one of the best pieces of work that he ever did, viz.: *Twenty Years of the Republic.* His very clever translation of *Trimalchio's Dinner* appeared in 1898, and in 1911 he published a *History of Classical Philology.* The writing of these and other books did not prevent his being a frequent contributor to various magazines and periodicals, in particular, the Cosmopolitan and Munsey's.

It is true of Dr. Peck, as of many men of genius, that he died without having done the *magnum opus* for which he was in many ways so well equipped. For many years he had in view a comprehensive history of Latin Literature. There are already in existence not a few of such histories—excellent, some of them—in which, however, the subject is treated with reference to an understanding of it simply as such. But Dr. Peck would have done something quite different and not less valuable. He would have presented Latin literature as a world literature, and would have analyzed its development and diverse phases in the light of a universal literary criticism. His wide reading and fine craftsmanship warrant the belief that this history, if only it had been written, would have been an interpretation of permanent value.

His life closed in trouble. But it now seems highly probable that the obscuration of his mind through disease, which was so evident towards the end, was in process for some years previous. Only a great pity and sorrow must abide for the unhappy ending of so brilliant a career.

McC.

Bartram, William C., '04 M, died in Newburgh, N. Y., on December 17, 1913.

Bell, Allister MacDonald, '04, M, died in Caldwell, N. J., on January 28, 1914.

Chamberlin, George Finch, '83 L, died in Harrison, N. Y., on February 9, 1914.

De Vinne, Theodore Low, '01 Hon., died in New York City on February 16, 1914.

Emanuel, Solomon Alexis, '75 L, died in New York City on February 27, 1914.

Heydecker, Edward Le Moyne, '83, '85 L, died in Mt. Vernon, N. Y., on February 10, 1914.

Hicks, Charles Seldon, '11 S, died in Flushing, N. Y., on December 9, 1913.

Jerome, Eugene Murray, '78 L, died in New York City on February 16, 1914.

Leal, John Laing, '84 M, died in Paterson, N. J., on March 13, 1914.

Maccaffil, Edmund, '72, died in New York City on February 7, 1914.

MacQuesten, Rockwood, '63, died in New York City on March 20, 1914.

Manice, William, '86, '88 L, died in New York City on January 19, 1914.

Moody, Samuel Lewis, '88, died in Saco, Maine, on October 9, 1913.

Post, George Browne, '08 Hon., died in Bernardsville, N. J., on November 28, 1913.

Post, Henry Burnet, '06, died in San Diego, California, on February 9, 1914.

Purdy, Alfred Edgar Martindale, '61 M, died in New York City on December 25, 1913.

Safford, Philo Perry, '88 L, died in Brooklyn, N. Y., on February 3, 1914.

Squires, Lewis, '04 L, died in Plainfield, N. J., on February 24, 1914.

Taylor, William Hickok, '80, died in New York City on February 7, 1914.

Tombo, Rudolf, Jr., '98 A.M., '01 Ph.D., died in New York City on May 22, 1914.

DORMITORY STATISTICS, COLUMBIA UNIVERSITY, AS OF APRIL 20, 1914

HARTLEY HALL

	1st Yr.	2d Yr.	3d Yr.	4th Yr.	Spec.	Grad.	Offic.	Total
Applied Science	10	4	12	8	3	......	......	37
College	22	15	10	13	1	......	......	61
Fine Arts	2	......	2	3	2	......	......	9
Law	9	9	5	......	6	......	......	29
Medicine	3	1	......	1	......	......	......	5
Officers	......	......	......	......	......	......	5	5
Pharmacy	......	......	4	......	......	......	......	4
Philosophy	......	......	......	......	......	6	......	6
Political Science	......	......	......	......	......	9	......	9
Pure Science	......	......	......	......	......	11	......	11
Teachers College	......	1	4	......	......	9	......	14
Journalism	10	6	1	1	4	......	......	22
Extension	......	......	......	......	20	......	......	20
Miscellaneous	......	......	......	......	......	......	......	......
								232

LIVINGSTON HALL

Applied Science	2	2	5	6	5	......	......	20
College	3	1	1	5	2	......	......	12
Fine Arts	......	1	1	1	4	......	......	7
Law	20	15	32	......	5	......	......	72
Medicine	3	1	......	......	......	......	......	4
Officers	......	......	......	......	......	......	25	25
Pharmacy	......	2	5	......	......	......	......	7
Philosophy	......	......	......	......	......	18	......	18
Political Science	......	......	......	......	......	26	......	26
Pure Science	......	......	......	......	......	9	......	9
Teachers College	2	1	1	4	......	15	......	23
Journalism	1	1	1	1	1	......	......	5
Extension	......	......	......	......	6	......	......	6
Miscellaneous	......	......	......	......	......	......	......	......
								324

DORMITORY STATISTICS (*Con.*)

FURNALD HALL

Applied Science	6	8	5	5	4	......	......	28
College	9	6	3	4	2	......	......	24
Fine Arts	2	1	......	......	4	......	......	7
Law	20	16	7	......	......	......	......	43
Medicine	4	1	......	1	......	......	......	6
Officers	......	......	......	......	......	......	27	27
Pharmacy	......	......	2	......	......	......	......	2
Philosophy	......	......	......	......	......	11	......	11
Political Science	......	......	......	......	......	14	......	14
Pure Science	......	......	......	......	......	13	......	13
Teachers College	......	......	3	......	......	12	......	15
Journalism	7	2	2	7	1	......	......	19
Extension	......	......	......	......	10	......	......	..10
Miscellaneous	......	......	......	......	......	......	......	......
								219

HARTLEY HALL, LIVINGSTON HALL, FURNALD HALL

Freshmen	135
Sophomore	94
Juniors	106
Seniors	60
Special	80
Graduate	153
Officers	57
Miscellaneous	—
	685

Number of rooms occupied in Hartley Hall	247
" " " " " Livingston Hall	262
" " " " " Furnald Hall	233
Total	742

Rudolf Tombo Jr.